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## Monterey, California



# THESIS

KOREAN UNIFICATION:  
A GAME THEORETICAL AND BARGAINING ANALYSIS

by

David L. Cook

June 1984

Thesis Advisor:

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Korean Unification:  
A Game Theoretical and Bargaining Analysis

by

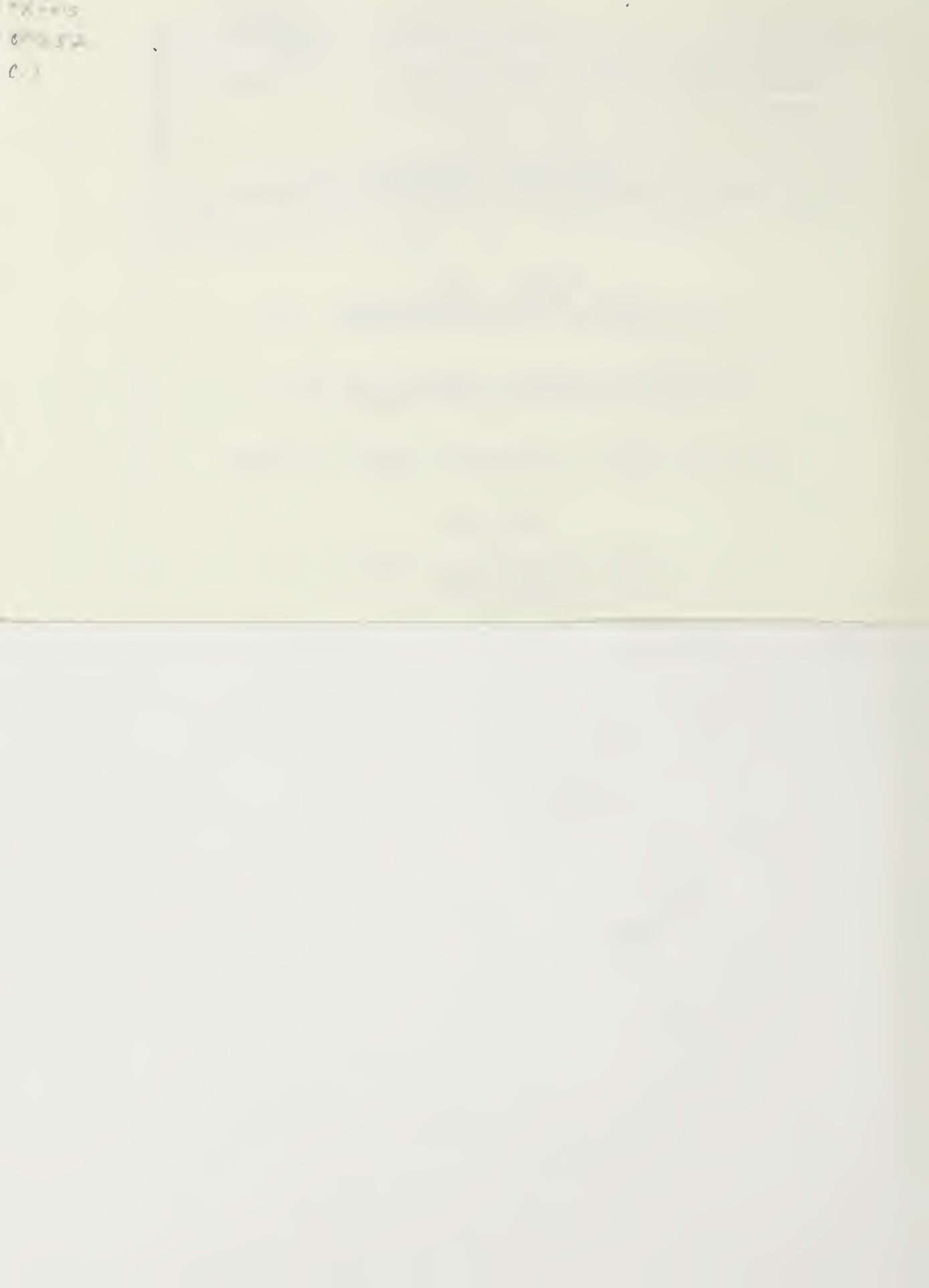
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## ABSTRACT

Since 1948 a stalemate has existed between North and South Korea on the issue of unification. Although discussions were held on the subject in 1972 and 1979, no substantive changes have occurred in the situation for 35 years. Thus, new approaches that could increase the possibility of agreement between North and South Korea must be developed. This thesis uses a game theoretical model based on the Prisoner's Dilemma to analyze the situation and provide strategy recommendations that can help alter the status quo. This theoretical model will provide policymakers with an insight into the problems involved in moving towards unification. The role that the U.S., Japan, USSR, and the PRC have in the unification process is also analyzed using the game theoretical model. It concludes that: the time to act is now, the initiative for unification must come from inside Korea, and that a substantive increase in communication and cooperation are crucial if unification is to occur.





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## I. INTRODUCTION

### A. PURPOSE

Solving the unification problem of North and South Korea is one of the most perplexing issues in Northeast Asia. For the past thirty years this problem has proven to be insurmountable. The unification of North and South Korea involves much more than the disagreement between these two countries. The confrontation also involves four great powers of the world: the United States, Japan, the People's Republic of China, and the Soviet Union. Geographically, this confrontation occurs in the backyard of three of the four major powers. For all four powers it is where major national interests converge. The array of formal and informal alliances between these four powers and the two Koreas further complicates the problem. This situation is extremely sensitive and volatile. Due to the sensitive nature of the situation a complete understanding of the unification issue is a requirement for all policy makers involved. Thus, all available means that clearly outline, define, and explain the problem should be brought to the attention of the governments involved. This is necessary



for two reasons. First, to understand the situation, all its complexities, and the factors that affect the strategies of the nations involved; second, to see what the available range of choices are upon which unification can be based. The unification problem requires the close attention of all the nations involved. This attention is necessary if a peaceful solution is to be reached and a conflict on the peninsula avoided.

This thesis attempts to use game theory and bargaining theory to analyze the unification issue in Korea. It will examine the nature of the dilemma in which the two Koreas are caught, the strategies employed by both sides in the situation, and the process of bargaining as a means of producing a mutually beneficial solution for both Koreas. Game theory will provide a better understanding of the situation as it has developed and as it exists today. A more thorough understanding of the situation will aid policy-makers in that: better policy choices can be made with a clearer understanding of the situation and, this knowledge can help provide a better environment within which bargaining can take place.

Bargaining theory provides a means of analyzing the prospects for agreement. But it cannot be separated from game theory. Rather, bargaining theory must be treated as an integral element of more general game theoretical models.

Bargaining theory can be used as an aid in developing agreements between opposing parties. Some conflict situations are relatively simple in nature. These will have at issue one or at most a very few points of contention. The solution to such a situation may be a simple yes or no. However; as conflict situations increase in complexity, the number of points of disagreement will increase. Such is the case in Korea on the unification issue. A simple yes or no by both sides may seem to provide a solution to the problem. However, the underlying problems involved in the integration of the two countries actually make for an array of problems that need to be solved. This is not necessarily bad. As the size of the problem increases, the number of possible solutions also increases.

There is in fact an infinite number of agreements that lie between the status quo and full unification. It is therefore not necessary to move directly from the status quo to full unification. If it were a simple thing to do one would really have to question the motives of the two governments involved for not already solving the problem. It is in fact a highly complicated situation that is fraught with deviation, misconception, and mistrust. Given a better understanding of the situation it is possible through bargaining to begin to move away from the status quo to a point where both North and South Korea will be better off.

Conversely, in moving from the status quo it is possible to reduce the tension that currently exists between these two countries.

The basic model developed in this study is a Prisoner's Dilemma model, which is a two-person non zero sum game. The structure of this type game closely resembles the current situation in Korea on the unification issue. The non-cooperative form of the game is explained first. It is non-cooperative because of the lack of communication and cooperation that has existed between the two countries. The game in the non-cooperative form displays the reasons why the situation has continued to exist since the end of World War II. The non-cooperative game exists due to the lack of any overt communication between the two players. This has certainly been the case in Korea. The lack of communication has prevented any move toward a solution of the unification issue.

The next step is to show how the existing situation can be modified so that the two Koreas can move from a non-cooperative game to a cooperative type of non zero-sum game. In the cooperative game communication between the players can occur and thus bargaining becomes an important issue in resolving the conflict.

Once involved in a bargaining situation it is possible to find a solution that satisfies both parties. This solution can be defined in temporary or permanent terms. If temporary, it becomes a small portion of what could be an ever increasing set of solutions. This growing number of small agreements could eventually lead to the outcome that would best benefit both sides. An example of this is the 20 Pilot Projects proposed by the Republic of Korea on February 7, 1982. If the South and the North were to agree that total unification was the ultimate solution that provided the greatest benefits for both sides, then the process of a set of smaller agreements on lesser issues could conceivably lead to unification, or as a minimum to the reduction of tension between the two Koreas. This may be a necessary first step in a long process.

A permanent solution is one in which the goals of both the South and the North are met at the conclusion of the initial bargaining encounter. This is extremely unlikely given the divergence of the possible solutions offered by each side, and the history of non-cooperation by both sides on this issue. Thus, the case in which a set of smaller solutions might lead to the ultimate settlement of the dispute is seen to have the most credence. This assumes, of course, that no catastrophic event such as war occurs that would provide an immediate solution to the problem.

Bargaining as the means of arriving at the outcome that best satisfies the needs of both sides becomes the central factor in the resolution of this conflict. In light of the fact that little has happened in Korea in this area, a new approach to the bargaining process is necessary. Roger Fisher and William Ury, from the Harvard Negotiation Project, have developed some novel approaches to the bargaining process. Their ideas of "principled negotiation" can be applied to the process of unifying Korea [1].

The models that are developed can be applied not only to total unification but also to lesser forms of conflict resolution in Korea. Thus, even if total unification were never to occur these models are applicable to other areas such as: tension and arms reduction, some form of intermediate or partial unification, or even the formalization of the status quo by all parties involved in the situation.\*

## **E. DEFINING UNIFICATION**

Prior to developing and utilizing the theoretical model it is important to define what is meant by unification. Unification of two countries falls into what is known as integration theory by political scientists. A number of

-----

\*Application of the models to these other areas will be developed further in the last chapter.



theories have been developed as to how and why integration occurs [2]. Integration of two countries can occur at many levels socially, economically and politically. However, social and economic integration of two countries is accomplished more easily than political integration. This is true because, of the three areas, only political integration requires a large measure of identification with the Community as a whole [3]. This is especially true in Korea given the diametrically opposed political systems of South and North Korea.

Ernst Haas defines integration as a process "whereby political actors in several distinct national settings are persuaded to shift their loyalties, expectations, and political activities toward a new center, whose institutions possess or demand jurisdiction over the pre-existing national states" [4]. Leon Lindberg, also writing on the European Community, defines integration as "the process whereby nations forge the desire and ability to conduct foreign and key domestic policies independently of each other, seeking instead to make joint decisions, or to delegate the decision-making process to new central organs" [5].

Amatai Etzioni has established a paradigm for political integration [6]. In referring to political integration he defines the end product of the unification process as a "political community".

A political community is a community that possesses three kinds of integration: (a) it has an effective control over the use of the means of violence; (b) it has a center of decision-making that is able to affect significantly the allocation of resources and rewards throughout the community; and (c) it is the dominant focus of political identification for the large majority of politically aware citizens. [7]

Total integration and thus unification can only occur when this political community is formed.

Harold Hakwan Sunoo discusses this fact in his book America's Dilemma in Asia [8]. He argues that political integration involves a move to the political center by both sides. This is difficult to accomplish since it "closely touches the problem of citizen's loyalty" [9]. One school of thought argues that the best way to achieve political integration is to start the process by focusing on limited functional areas such as economics and welfare [10]. Success at these tasks can then facilitate a gradual transfer of loyalties to the broader political unit. While this is true for complete unification it does not follow that the unification process must happen all at one time [11].

In order to build a workable model the statements and proposals made by North and South Korea must be taken literally. This is to say that both governments are sincere in their statements and proposals and that they truly desire to



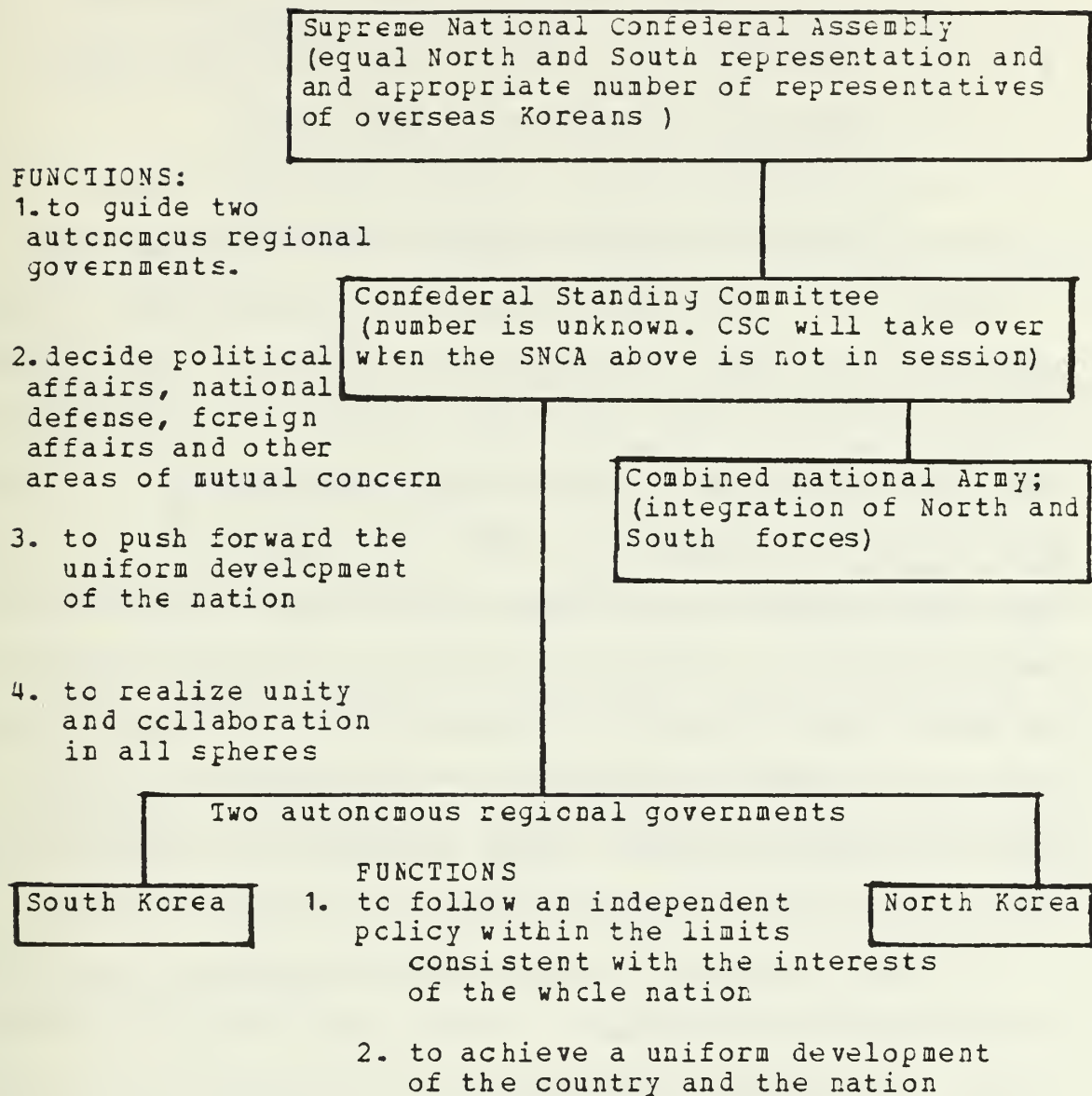
unify the country. It is possible that the two Korean governments do not stand behind their rhetoric and proposals. Therefore they may have other reasons for making their proposals on the unification issue such as sustaining their political regime in power. Or, as Gavan McCormack asserts, "that proposals by either side are not necessarily serious-they may well be offered simply to give the appearance (to one's own side, to the other side, or to world opinion generally) of flexibility, and concern to seek a just and fair solution, and offered in full awareness that the proposal will be unacceptable" [12]. The unification issue in this situation becomes the basis for the legitimacy of the two governments. While both countries have differing plans as to how this integration should take place, they both agree that the ultimate solution is total and complete social, economic, political, and geographic integration. Total integration in all four of these areas then becomes the definition of unification on which the models will be based.

In taking the two Koreas statements and proposals literally, there are three assumptions that must be made. First, both North and South Korea are in fact saying what they mean. This implies government support for their announced unification policies. Second, both are striving continuously towards their ultimate goal of complete unification of

their country. Third, that there are in fact mutual interests in unification that are recognized by both sides.

As a point of departure, the current proposals for the unification process as seen by the South and the North are presented. Their methods for achieving unification differ greatly. Since they are so different, they have contributed to the lack of any meaningful dialogue between the North and the South on unification. By sticking solidly to these positions, North and South Korea have been unable to affect an agreement. Roger Fisher and William Ury refer to this as "bargaining over positions". This "fails to meet the basic criteria of producing a wise agreement, efficiently, and amicably" [13].

The DPRK proposal, given by Kim Il Sung at the Sixth Congress of the Korean Worker's Party in October 1981, is shown in Figure 1.1 [14]. The plan involves first establishing a Supreme National Confederal Assembly with equal representation from the North, the South, and overseas Koreans. A Confederal Standing Committee (CSC) would guide both regional governments and administer all affairs of the confederal state. The DPRK plan calls for the new country to be neutral and non-aligned with no affiliations to any political or military alliance or bloc. North Korea has established several pre-conditions for the establishment of this confederal state to which the South must agree. They are:



Source: Tae-hwan Kwak, "Problems of Korean Political Integration", p. 24.

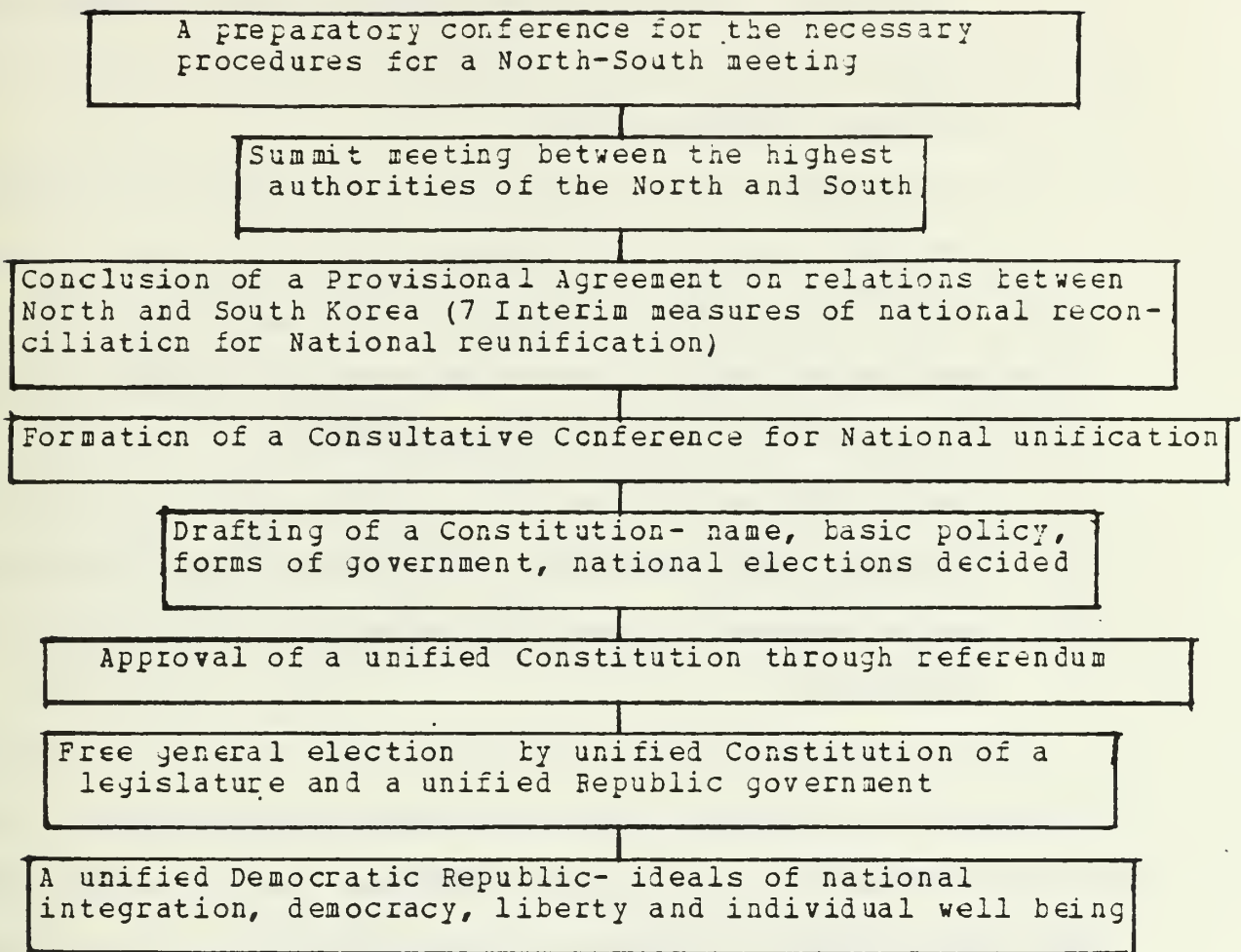
Figure 1.1 DPRK Unification Formula.

1. the elimination of fascist rule in the South,
2. the repeal of anti-communist confrontation policy,
3. the repeal of the National Security Law,
4. the withdrawal of U.S. forces from South Korea,
5. release of political prisoners including communists.

Figure 1.2 shows the ROK plan for unification. This plan involves initial cooperation at a lower, non governmental level that would eventually lead to a unification of the two governments. This plan was proposed by President Chun Doo Hwan on January 22, 1982. The first step would be the establishment of a Consultative Council for National Reunification. It would be composed of delegates from both the North and the South. The purpose of this Conference would be to draft a Constitution designed to establish a unified democratic Korea. When completed the Constitution would be made law by a referendum held throughout Korea.

The South proposed several interim measures that would be contained in an agreement on relations between the North and the South during the period prior to the establishment of the unified state. They are:

1. relations between the North and the South should be based on the principle of equality and reciprocity pending unification,
2. both countries should abandon all forms of military force and violence, as well as the threat to use such



Source: Tae-hwan Kwak "Problems of Korean Political Integration" p.26.

Figure 1.2 ROK Unification Plan.

force, and try for peaceful solutions to all problems through negotiation,

3. both countries should recognize the other's existing political order and institutions and should not interfere in the other's internal affairs,



4. both sides should maintain the regime of the armistice in force while working to end the arms race and military confrontation,
5. both sides should open their society to the other; for free travel and promoting exchange and cooperation,
6. both sides should respect the other's bi-lateral and multi-lateral treaties and agreements,
7. both sides should appoint a plenipotentiary envoy with the rank of cabinet minister to head a resident liaison mission to be established in both Seoul and Pyongyang.

These two formulas for resolving the conflict are indeed miles apart. However, there are some mutual interests that can be identified. The main difference is not in the fact that the ultimate interests are different, but on the vehicle necessary to achieve those interests. Since there are some mutual interests, it becomes important in resolving the basic conflict to (1) highlight those interests; and (2) to understand the complete range of factors that affect the process of achieving those interests. One tool available that can do these two things and thus can be useful in resolving the conflict is game theory.

### C. RELEVANCE OF GAME THEORY

Martin Shubik, a leading game theorist, defines game theory this way:

Game theory is a method for the study of decision making in situations of conflict. It deals with human processes in which the individual decision unit is not in complete control of other decision units entering into the environment. It is addressed to problems involving conflict, cooperation, or both, at many levels. The decision unit may be an individual, a group, a formal or an informal organization, or a society. The stage may be set to reflect primarily political, psychological, sociological, economic, or other aspects of human affairs. The essence of a game in this context is that it involves decision makers with different goals or objectives whose fates are intertwined. [15]

The analysis of games will not furnish a normative code of how to behave ethically in any concrete situation, nor does it give us a complete empirical theory of how people actually do behave in real-life situations. Hence, we do not expect from game theory a reliable predictive capability in international politics. However, the general consensus among game theorists is that, when used correctly, game theoretical models can aid us in understanding and resolving conflicts. In the words of Anatol Rapoport, "the achievement of game theory, then, is that it relates precise concepts to conflict resolution that have hitherto had only an intuitive meaning or rather different meanings for different people in



different contexts" [16]. Thus, it is assumed, that a better understanding of the conflict situation will be an invaluable aid in resolving the conflict. This is true since all players will be utilizing the "same sheet of music" from which to play. With all the positive aspects to be gained in applying game theory to international relations it must not be assumed that there are no deficiencies. However, even after its deficiencies and limitations are recognized, game theory remains a useful analytical tool [17]. More specifically the rational approach to game theory can be useful in the following areas:\*

1. For conceptual clarification of how to define rational behavior in various social situations,
2. for explanation of people's behavior (in cases which their behavior exhibit high degrees of rationality and therefore admits an explanation in terms of a rationalistic theory)
3. for providing heuristic criteria for explanatory and predictive theories of social behavior,
4. for providing a descriptive standard by which to judge the rationality of people's behavior,

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\*Rationality as applied to the model in this study is defined in Chapter 3.

5. for providing rational strategy recommendations for the various participants. [18]

This thesis will highlight and expand on the second and fifth points above. Game theory will be used first to understand the existing situation. It will be a tool by which both observers of and participants in the unification issue can gain a better understanding of:

1. the structure of the game and thus the conflict,
2. the ordinal preferences among a range of several outcomes for both players,
3. the role the payoff structure of the possible outcomes plays,
4. the risks involved in choosing one outcome over another or in moving from one outcome to another,
5. how the payoffs of each outcome affect players choices,
6. what can be done to move towards a solution of the dilemma,
7. what external factors can affect the game's structure (outcomes, risks, and payoffs),
8. how any features of the situation concealed by rhetoric may be exposed,
9. how perceptions of the situation by the players might be changed given the clearer understanding of the situation as outlined by game theory.

Knowing the range of available options and the effects of choosing one of those options is a key element in solving the problem.

Secondly, specific strategy recommendations can be made as to how the two players can resolve the conflict. These will be based on a set of rational choices derived from the study of the model. They can be developed in two ways. First, there are game theoretical solutions to Prisoner's Dilemma that have been provided by leading game theorists. These solutions can only be taken in an abstract sense since the studies of Prisoner's Dilemma were done in controlled, highly mathematical situations in the laboratory. The use of these solutions in international relations is merely an extrapolation of the conclusions gleaned from the results obtained in the laboratory. In the "real world" of international conflict these solutions may or may not work in a given situation. They would be subject to influences that cannot be readily quantified in the laboratory such as; the national will to act in a given situation, the bargaining style of the opponents, and the internal political pressures placed on the governments in trying to negotiate a solution to the dilemma. Therefore, general concepts as to the strategies to be employed are the most important element to be gained from these laboratory situations, and the basis for the recommendations in this thesis.

Second, there are historical studies of actual conflict situations that can be described in terms of game theoretical models. The best one by far is by Glenn H. Snyder and Paul Diesing Conflict Among Nations: Bargaining, Decision Making, and System Structure in International Crises [19]. In their study of twelve Twentieth century conflicts they examined how solutions were obtained. They placed the conflict in a game theoretical context, by type of game, and determined the elements that resolved the situation. This was done from the aspect of the bargaining and decision making that took place on both sides of the conflict.

The key element in solving the dilemma is bargaining. While Snyder and Diesing describe the elements of bargaining that were necessary to solve conflicts that have occurred, they do not discuss how to bargain. For the purpose of this study, a more practically oriented approach to bargaining is necessary. Such an approach is provided by Roger Fisher and William Ury and is discussed in chapter 7.

## II. HISTORICAL BACKGROUND

The issue of unification is vitally important to both North and South Korea. It has been at the forefront of their foreign policies since the establishment of their respective governments. Until recently, much of their diplomatic activity around the globe was to elicit support for their respective side on this issue. It was felt that this would lend a certain amount of legitimacy to their bargaining position. To understand the current situation in Korea on the unification issue one must have some knowledge of the historical course of events as played by both sides since the end of the Second World War. This period can be divided into seven phases.\*

### A. 1945-1950

With the Cairo Conference in 1943 Roosevelt, Churchill, and Chiang Kai-shek declared that upon the defeat of the Japanese, "the three great powers are determined that in due course, Korea shall be free and independent". However, by

-----  
\*A more detailed chronology of these events is in Appendix A.



the time of the Yalta Conference it was apparent Soviet interests in Asia would have to be accommodated. With the fall of the Japanese the US decided to allow the partitioning of Korea at the 38th parallel. US interests at that time lay more in Japan, and it was felt that the 38th parallel was as far as the US could secure in Korea, given the deactivation of much of its armed forces. While the US was engaged in occupying Japan and dissolving the Japanese armed forces, the Soviet Union began in 1945 to move into the northern half of Korea and occupied it with a large contingent of its armed forces. The United States and the Soviet Union held talks in May and October 1946 to discuss ways of unifying Korea. These discussions did not solve any of the basic differences between the two sides and were suspended indefinitely.

The Soviets established Kim Il Sung as the leader in the North. In his first statement as Premier of the DPRK, in September 1948, he proclaimed unification to be the top priority of his government [20]. The United States, on the other hand, in 1947 turned the unification issue over to the United Nations. The UN called for general elections to be held in all of Korea to determine a national leader. The DPRK refused to have elections in the North so the elections were held only in the South. From this election came the rise of the Republic of Korea in 1948. With the Soviets

firmly entrenched in the North, and the US and UN backing the government in the South, the die was cast for the continued division of Korea. In the late 1940's this situation was exacerbated by the decline of relations between the US and USSR, and the Korean War.

## B. 1950-1953

With the coming of the Korean War in June 1950, it became apparent that both the North and the South were seeking a military unification. At different points in the war both sides came close to achieving this goal. None of the major powers involved; PRC, USSR, US, pushed for a final military solution to the problem of a divided Korea for fear of it growing into a new World War. This sentiment on the part of the major powers continues today and is one of the reasons that another try at military unification has not occurred [21]. The signing of the Armistice in 1953 did not settle the unification issue. The terms of the Armistice were to be temporary pending the conclusion of a lasting peace [22]. A peace treaty has not been signed and the terms of the Armistice still stand. This is another impediment to unification. The ROK was not a signatory of the Armistice. Consequently the DPRK feels they should not be included in any discussions concerning a permanent peace



treaty. This was amended in an offer made by North Korea in January 1984 that proposed talks with both the United States and the Republic of Korea on the unification issue.

### C. 1953-1961

The failure of a military solution to the unification issue brought in a era of a mutual standoff. The Southern regime of Syngman Rhee maintained a formal posture of "pukchin" ("Northward march") to reunite the country, but took no concrete steps [23]. With his country in ruins and as a result of his try at military unification, Kim Il Sung began his quest for a peaceful solution to unification. In his report to the Sixth Plenum of the Central Committee of the Korean Worker's Party on August 5, 1953, Kim described the significance of the Armistice as the first step toward the peaceful solution of the Korean question and the first example of a contribution toward the easing of international tensions [24].

The Geneva Conference on Korea held in June 1954 failed to settle the unification issue. The Conference was attended by the ROK and its 16 allies on one side and by the DPRK, the USSR and the PRC on the other. The discussions broke down over three issues that were favored by the South and firmly rejected by the North: (1) the authority and

competence of the United Nations on the Korean question, (2) United Nations supervised elections proportionate to the population of the whole of Korea, (3) and the stationing of United Nations forces in Korea until the creation of a unified, independent, and democratic Korea. [25]

On the other hand, the US and the South refused to give up any freedoms that were alive in the South as a result of the War. In December 1954 the United Nations General Assembly, after the failure of the Geneva Conference, reaffirmed its goal of a unified, independent, and democratic Korea that would be established by peaceful means. This was the beginning of the annual United Nations debates on the Korean division that would prove to be of no avail.

In 1956 and 1957 Kim proposed that international conferences on Korea be held. The purpose of these conferences was: to guarantee peace in Korea, to achieve a North-South agreement not to use military force, and the withdrawal of all foreign troops [26]. During this period the North began a series of economic development plans. Chinese troops were withdrawn from Korea in 1957. In the South, Syngman Rhee was unable to stimulate economic development and could not maintain control over the military. He was put out of office in 1960.

Soon after the overthrow of the Rhee government, there was for the first time, a cooling of the tensions between the North and the South. Political instability in the South led to the rise of the Park government. Students in the South were involved in a movement for national reunification. During this time period, the North first proposed its idea of a confederal government. It was suggested under this plan that both countries would retain their political systems and governmental activities on an independent basis, but would jointly regulate their economic and cultural activities through a "supreme national committee" [27]. Even though the North had proposed this idea of a confederal government, they continued to promote in the South the idea of a revolutionary struggle against the US and the ROK government. The proposal for a confederal government was rejected by the South.

#### D. 1961-1970

This period began with the rise to power in the South of Park Chung Hee. His fervent anti-communist stance caused the North to examine its policies on security and unification. Within several months of Park's coup, the DPRK concluded mutual defense treaties with the USSR and the PRC. Throughout this period the North continued its two line

method of unification proposals. These proposals were highly contradictory. The first proposal was to continue the revolutionary struggle in the South against the US and the ROK government. The US involvement in Vietnam probably fueled this idea of a revolutionary struggle in the South since the guerilla style of warfare being waged was seen as being a successful tool against the US.

At the same time this line was proposed the North was also advocating unification along peaceful lines, through several intermediate steps. This confusion on unification policy by the North combined with the anti-communist stance of the Park government contributed little to the advancement of unifying Korea during this period. As part of their drive for revolutionary struggle in the South, the North began a massive campaign to strengthen its economic base and its armed forces. Defense expenditures grew at a rapid pace. The increase resulted from a perceived new threat as a result of: the escalation of the US involvement in Vietnam, the deepening of the Sino-Soviet dispute, the ROK's participation in the Vietnam War, the ROK-Japan normalization, the economic growth that had started in the South, and the growing strains on the North's economy [28]. Incidents along the DMZ increased yearly during this period, culminating with the seizure of the US ship Pueblo in 1968 and the downing of a US EC-121 aircraft in 1969.

North Korea, seeing that its idea of revolutionary struggle in the South was not working, embarked on another route in order to gain legitimacy for its position. It began to elicit support from Third World countries in order to gain a more favorable position in the UN on the unification issue. The number of UN members voting for pro-North Korean resolutions in the General Assembly increased from 21 in 1966 to 24 in 1967, 25 in 1968, and 29 in 1969, and 32 in 1970 [29].

South Korea, in spite of its hard line stance during this period, made a proposal in 1970 that was intended to begin a peaceful process of unification. The basic proposal centered on North Korea ending its goal of military unification. The South said it would not oppose North Korean participation in the UN debates on Korea if the North would recognize the authority of the UN to deal with the situation. The North rejected these proposals.

Thus, by 1970 there was on both sides a change in their basic hard line positions on the unification issue. Both sides had made what they thought were concessions, only to have them rejected by the other side. There was one other outcome of the struggle between the North and the South during this period. The North Korean increase of border incidents, infiltrations, and the seizure of the Pueblo caused the US to strengthen its commitment to the South and to begin the modernization of the ROK Armed forces.



## E. 1971-1973

In April, 1971 the North unveiled a proposal for unification that was a major change from their past policies. Soon after it was announced, Kim Il Sung stated for the first time that the North would talk with the South Korean ruling party headed by Park Chung Hee. The South was forced to accept the proposals for talks with the North for two reasons, one internal and one external. First, in the 1971 elections, the opposition candidate Kim Dae Jung came extremely close to winning the ROK election. This forced President Park into a situation where he had to do as his campaign had stated and work towards unification. Second, the surprise announcement of US-PRC rapprochement made the future position of Korea as a whole look uncertain from Seoul and Pyongyang.

While these talks did have some favorable outcomes, for example the establishment of a direct communications line between Seoul and Pyongyang, in the end the two sides could not agree on the way that unification should occur. The North wanted unification to occur first on the governmental level. Along with that they desired that the armed forces of both countries be reduced and that the US withdraw all its troops from the ROK. The South saw unification occurring as a gradual process beginning with contacts on a much lower

level that would spread into the political and military areas. The talks were broken off in 1973 as each side saw the futility of dealing with the other.

#### F. 1973-1979

The breakdown of the North-South talks began a period of mistrust and standoff between the two Koreas. While there were no significant contacts between the two governments during this period, there were some developments in Korea that fueled the separation. In 1974, the North proposed that the 1953 Armistice be made the permanent peace treaty. This would cause the withdrawal of all US forces from the peninsula. The idea was rejected by the US. The North began to conclude formal diplomatic recognition with nations around the world. This was done to gain UN support on the Korean question. Thus, in 1975, the North was able for the first time to have a resolution in the UN on the Korean issue passed in its favor.

The US, under President Carter, announced in 1977 that all US combat troops would be withdrawn from Korea. This announcement had two major effects in Korea. First, the North increased its border incidents along the DMZ. Several major tunnels were found under the DMZ coming from the North. Second, as a result of the proposed US withdrawal,



the ROK armed forces began to be modernized and the ROK began to supply a majority of its own arms for its forces. The ROK economy was growing at a fast rate and its trade around the world was expanding. By the end of 1978, both the North and the South had a certain measure of support from other countries. The interests of the US, the PRC, USSR, and Japan were firmly set in the region. The question of US troop withdrawal was the major issue to be settled.

#### G. 1979-1980

1979 was an interesting year in the unification arena. There was a renewal of interest between the North and the South as a result of the US-PRC normalization. Talks were held in early 1979, but did not prove fruitful. The delegates could not get past the preliminary stages of credentials and agenda. The US made a dramatic shift in its troop withdrawal policy when it was announced that a new view of the threat posed by the North would cause the US to keep its combat troops in Korea.

In July 1979, a joint communique by President Carter and President Park suggested that talks be held to reduce tensions between the North and the South. The North ultimately rejected the proposal. The assassination of President Park in late 1979 and the internal problems of

the South caused by the assassination put progress towards unification on hold. In January 1980, the North in a series of letters proposed that talks on unification be held at the highest levels of the two governments. Talks were held over the next nine months, but again proved fruitless. There were no substantive unification issues discussed.

#### H. 1981-PRESENT

In a dramatic change of policy, President Chun of the ROK proposed on January 12, 1981 that an exchange of visits by the top leaders of the South and the North occur "without any conditions attached and free of obligation" [30]. The North rejected this proposal one week later. Later that year, in June, Chun proposed a summit meeting with Kim Il Sung, with the date and place of the meeting to be chosen by the North. This proposal was also rejected by the North within a week.

In the early fall of 1981 the Red Cross, who had been instrumental in earlier tries at establishing dialogue between the two Koreas, proposed a meeting of their representatives from the North and the South to discuss the the problem of the division of families caused by the separation of the country. In November 1981, the ROK Ministry of Culture proposed joint archeological work be performed by

the North and the South as a base for low level contacts that might increase cooperation between the two countries.

In his New Year's Address in January 1982, President Chun called for the formation of a Consultative Conference on Korean Unification that would draft a joint Constitution for a united Korea. In February, 1982 the ROK Minister of National Unification called for joint cooperation on 20 pilot projects for North-South exchange in an effort to increase low level cooperation. This proposal was firmly rejected by Kim Il Sung who instead called for a unification conference of 50 persons from both the North and the South. However, as stated by Premier Kim, this conference would not have included many of the present political leaders of South Korea.

### III. DEVELOPING A THEORETICAL MODEL

Game theory is a specialized form of bargaining and decision-making theory. It can be defined as a theory of rational decision making in conflict situations. It deals with human processes whereby one decision maker is not in complete control of other decision making units that are involved in the game. The decision making leads the players to choose one outcome over another. The interests of the players evolve from the values they assign to each of the possible outcomes. Models of such situations, as they are perceived in game theory, involve, (1) a set of decision makers, called players; (2) a set of strategies available to each player; (3) a set of outcomes, each of which is a result of particular choices of strategies made by the players on a given play of the game; and (4) a set of payoffs accorded to each player in each of the possible outcomes [31].

Prior to the development of the model it is necessary to discuss three concepts that affect the game. They are all integral parts of the game as it is played. To understand the usefulness of the model a policymaker must have a grasp of each area. The areas are: (1) the necessary requirements

for a game to exist; (2) the definition of rationality as it is applied to the model; and (3) utility maximization as it is affected by rationality.

#### A. GAME REQUIREMENTS

In game theoretical terms the following elements are the necessary prerequisites for establishing a game:

1. two or more players are trying to get the best of each other (zero sum game), or achieve a solution that is best for both (non zero sum game),
2. a payoff or a set of payoffs which may mean various things to the players because of discrepancies in their value systems,
3. a set of ground rules or guidelines which must be observed if the game is to be played according to the definition of the game,
4. information conditions which determine the quality and quantity of knowledge which each player has of the environment and of the choices made by the other player,
5. the total environment in which the game is played whether fully perceived by the players or not,
6. the interaction of competing moves, in which every choice by one may prompt the other to modify subsequent choices. [32]

The situation in Korea, insofar as the unification issue is concerned, meets the above criteria in that:

1. there are at least two players (North and South Korea) and possibly more (US, USSR, PRC, Japan) who have a direct interest in the stalemated Korean situation,
2. there are payoffs to be achieved by both South and North Korea in total unification, the status quo, or in a unification that would result in the country being controlled totally by one or the other,
3. the rules and guidelines which exist are such things as the 1953 Armistice Agreement, international law in general, and the constraints placed on the two Koreas by their major supporters,
4. the knowledge gained by each side comes from involvement in the world community economically and diplomatically. The information conditions which exist then are the same as for the rest of the world community,
5. the total environment of the game is the current world situation with its many complexities. It therefore contains both knowns and unknowns based on the perceptions and misperceptions of the countries involved,



6. competing moves have occurred since 1953. Whether these moves (proposals for a solution) have promoted a change in the other side's subsequent choice is debatable. However, some modification of the original positions has occurred.

In order to develop a theory, we will assume rational action by both sides. In doing so, it is necessary to define what is meant by rationality and more importantly how this definition is to be applied to the game theoretical model.

#### B. DEFINING RATIONALITY

At the outset it must be assumed that the model relies on "rationally correct" behavior as opposed to actual behavior that may occur in conflict situations.

A theory of rational behavior in game situations will achieve its highest usefulness both in a theoretical analysis and in practical policy making only if it supplies a unique well-defined standard of rationality, i.e., a unique determinate solution, for every possible game situation—at least when we know the player's utility functions and the rules of the game, specifying the players' strategy possibilities and their access to information and communication. [33]

If one assumes irrationality then it is highly unlikely that a worthwhile theory could be established. There would be few, if any, conclusions that could be drawn from a theory

based on irrationality. This is true since irrationality would negate any logical premise drawn from a model that was based on irrational behavior.

The situation becomes for the players a game that they are trying to win. That is, each player is attempting to achieve an objective which the other party in the game is trying to deny them. Likewise, one must assume that they believe their opponent is acting "rationally" and is in pursuit of an objective by trying to manipulate or second guess his opponent.

It is important to understand what is meant by the term rational. According to James March and Herbert Simon the classic notion of rationality has the decision-maker choose "optimal" strategies in the following environment:

1. When we first encounter him in the decision-making situation, he already has laid out before him the whole set of alternatives from which he will choose his action. This set of alternatives is simply "given"; the theory does not tell how it was obtained.
2. To each alternative is attached a set of consequences-the events that will ensue if that particular alternative is chosen. Here the existing theories fall into three categories: (a) certainty: theories that assume the decision maker has complete

and accurate knowledge of the consequences that will follow on each alternative. (b) risk: theories that assume accurate knowledge of a probability distribution of the consequences of each alternative. (c) uncertainty: theories that assume that the consequences of each alternative belong to some subset of all possible consequences, but the decision maker cannot assign definite probabilities to the occurrence of particular consequences.

3. At the outset the decision maker has a "utility function" or a "preference ordering" that ranks all sets of consequences from the most preferred to the least preferred.
4. The decision maker selects the alternative leading to the preferred set of consequences. In the case of certainty the choice is ambiguous. In the case of risk rationality is usually defined as the choice of that alternative for which the expected utility is greatest. In the case of uncertainty the definition of rationality becomes problematic; consider the worst set of consequences that may follow from each alternative, then select the alternative whose worst set of consequences is preferred to the worst sets attached to other alternatives. [34]

There are difficulties with this model of rationality as March and Simon point out. First it only agrees with the common-sense notions of reality in the case of certainty. Second, it makes three important demands on the choice-making mechanism. It assumes (1) that all the alternatives of choice are "given"; (2) that all the consequences attached to each alternative are known; and (3) that the rational man has a complete utility-ordering system for all possible sets of consequences.

March and Simon point out one problem in rationality assumption. Since decision makers do not have all possible information about the consequences of all available choices they are "subjectively" and not "objectively" rational. Thus rationality depends on the "frame of reference" of a given decision maker.

March and Simon's theory of rational choice has two fundamental elements: (1) choice is always exercised with respect to a limited, approximate, simplified model of the real situation, (2) the elements of the definition of the situation are not "given" - that is, we do not take these as data of our theory - but are themselves the outcome of psychological and sociological processes, including the chooser's own activities and the activities of others in his environment. [35] They derive their definition of rationality given the "subjective" nature of the decision makers

choice as finding a "satisfactory" alternative is opposed to the classic definition in which finding the "optimal" alternative is the goal. An alternative is "optimal" if: (1) there exists a set of criteria that permits all alternatives to be compared, and (2) the alternative in question is preferred, by these criteria, to all other alternatives. An alternative is "satisfactory" if: (1) there exists a set of criteria that describes minimally satisfactory alternatives, and (2) the alternative in question meets or exceeds all these criteria [36].

The idea of choosing a satisfactory alternative by the two Koreas will be assumed since it is based on the knowledge of the choices as seen by the two players. It is not based on criteria that contains all possible knowledge about the alternative choices. Thus in saying that a choice is optimal for the two players, this assessment is based on the fact that they are acting on the knowledge they have at that given point in the game.

### C. UTILITY MAXIMIZATION

Game theory is concerned with the participants choice of the most appropriate means to a given end. As can be seen, this can be expanded to mean not only choices of alternative means to a specific end but also choices among alternative



ends. This need for alternative ends arises because it is not possible to attain all the ends at the same time. The players find themselves in a situation that has many possible outcomes with different values assigned to each outcome.

The individual must consider how to achieve as much as possible, taking into account that there are others whose goals differ from his own and whose actions have an affect on all. The decision maker in a game faces a crss-purpose optimization problem. He must adjust his plans not only to his own desires and abilities but also to the desires and abilities of others. [37]

In the case of the twc Koreas, this is the choice among war, the status quo, a peaceful unification\*, or unification under either Communist or Democratic rule. Borrowing from econcmic theory, in crder to achieve a certain end a player must be willing to forgo the benefits of the ends that were not chosen. One then creates opportunity costs that must be born when choosing one end over another. As in econcmics, a player will attempt to maximize his benefits from a set of given ends. This is defined as his utility function. In

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\*"Peaceful unification" is used for the lack of a better term. What is being referred to is the optimal solution which both North and South Korea say they desire. This would be a solution that would allow a peaceful unification to occur that would satisfy the majority of both sides goals and desires. While the chances seem remote for this to happen, it is nevertheless both sides ultimate goal.



defining the utility function one must remember;

the usefulness of simple utility maximization as a definition of rational behavior is largely restricted to the case of certainty, in which the choice of outcomes of alternative actions are known to the decision maker in advance, because they cannot be influenced significantly by chance or the actions of other individuals. It has remained for modern decision making theory to find a more satisfactory definition for rational behavior in the cases of risk and of uncertainty. This has been accomplished by showing that in these cases, if a given decision maker's choice behavior satisfies the appropriate rationality postulates, then it can be represented as maximization of his expected utility. [38]

The definition of "bounded" rationality as presented by March and Simon satisfies these requirements. This is true since a rational player is defined as one who attempts to maximize his gains and minimize his losses based on his knowledge and the constraints of the situation as it exists at any given point in time.

The choice among alternative ends is based on utility functions for each payoff. In choosing a given outcome, thereby deriving the benefits of the payoffs (utilities) from that outcome, a given player must take into account two factors. First, the choice between payoffs gained from an outcome must be weighed against the payoffs a player forgoes in not choosing other outcomes. This choice is based mostly on the opponents perceived choice of outcomes since they are in an interdependent relationship. As rational actors, they

are utilizing bounded rationality as the basis for their choice of outcome. Both players will try to maximize the gains received for their side.

Second, the players must take into account the risks involved in choosing a given outcome. This gets at the heart of the dilemma. In the case of Korean unification this idea of risk avoidance explains why the status quo continues. The payoffs to be gained by mutual cooperation, as represented by complete unification, are conceivably greater than the payoffs a player would receive from continuing the status quo. However, the players continue to choose the status quo since the risks of taking a chance at cooperation are perceived by the players as being great. In moving towards the joint cooperative outcome a player risks the chance of being deceived by the other player. This would cause his payoffs to be smaller than if he remained in the status quo. This would leave the opponent, the player who did not cooperate, with a payoff higher than what he receives from the status quo. Thus each player, in choosing an outcome, must balance the payoffs to be gained from that outcome against the risks involved in choosing that outcome.

In simple terms, there are advantages and disadvantages that a player must consider when choosing an outcome. The players choose an outcome given the information they know about how that choice will affect them, their perception of

how their choice will affect the other player, and their best guess as to what choice their opponent will make. A player knows how the first one will affect him. The second and third factors are basically unknown. Therefore, anything which increases the players knowledge in these two unknown areas will increase the chance that they will choose the outcome that has the highest mutual payoff and least risk for both players.

#### D. TYPES OF GAMES

There are three general classifications of games. First, there are games of chance. An example of this type of game would be craps. Second, are games of skill. These are characterized by most types of sports. Third, are games of strategy. A strategy is a set of instructions which state in advance how a player intends to select each move until the end of the game, taking into account the knowledge that he will have available at the time at which he is called upon to select his move [39]. The key element in this type of game is that choices are made by the players based on conditions set by the game itself and the choices made by other players.

It is possible that chance can be an element of games of strategy, but unlike the actual players, chance has no vested interest in the outcome of the game. The essence of this type of game is that it involves decision makers with different and competing goals, interests, and objectives. Chance and skill are an inherent part of international relations, however, these two types of games in their pure state do not have a direct application to the international arena. As components of games of strategy they do play a part. Thus, only games of strategy have serious application to international relations.

Within games of strategy three groups can be identified: (1) games with identical interests, (2) games with opposite interests, and (3) games with mixed interests. In attempting to describe international relations, games with identical interests have little or no utility. Therefore, the application of game theory to international conflict in general can be done in terms of opposite interests or mixed interests. Games with opposite interests are known as zero sum games while those with mixed interests are known as non zero sum, variable sum, or mixed motive games. [40]

Prior to developing the game theoretical model it becomes important to understand whether the situation in Korea is to be viewed in terms of a zero sum game or a non zero sum game.

## 1. Zero Sum Games

The zero sum game is characterized by the fact that the sum of all payoffs is equal to zero. Inherently then, anything that one player wins the other player loses. These gains and losses, to be truly zero sum, must be exactly equal. Chess, checkers, and two person poker are pure examples of this type game.

The application of the zero sum concept to international conflict has limited, if any, use [41]. To illustrate this point Kenneth Boulding devised the following example.

We may ask with some justification why anyone would ever play a truly zero sum game. The long-run gains for each party are clearly zero, which will be true in any game of absolutely fair gambling. Unless, therefore, there are payoffs in terms of excitement or the pleasure of playing the game for its own sake, there would be no incentive to play the game. It is easy to devise a game where, at the equilibrium minimax one party has a positive gain but the other party must have an equal loss and hence will refuse to play the game. If A tries to bribe the other party to play the game, he will have to pay him at least a penny, in which case A's gain is reduced to zero and B's raised to zero. This illustrates a fundamental principle that, in the zero sum game, there can be no bribery, for the bribe would have to be so great as to make it not worthwhile for the briber. Bribery always suggests some kind of positive-sum game. [42]



Kenneth N. Waltz in his book Man the State and War: a Theoretical Analysis also sees little utility in trying to describe the actions of states in the international system in terms of the zero sum game.

In a zero sum game, the problem is one of distribution, not at all one of production. But the activities in which men and states are engaged seldom correspond to the zero sum model. The problem may be one of production as well as distribution. The game, in the terminology of von Neumann and Morgenstern, becomes a general game. In a general game, "the advantage of one group of players need not be synonymous with the disadvantage of the others. In such a game moves-or rather changes in strategy-may exist which are advantageous to both groups. In other words, there may exist an opportunity for genuine increases of productivity, simultaneously in all sectors of society." This is a situation in which we have not just a pie to divide but the problem of how much pie to make as well. [43]

Waltz further explains that the game under these conditions can move towards two extremes: (1) it may become a simple problem in maximization, all the players may cooperate to make the largest pie; or (2) all the players may be so intent on the question of how the pie already in existence should be divided that they forget about the possibility of increasing the amount each will have by working together to make more of it. Thus, instead of a simple maximization problem, the game reverts to a zero or constant sum game. There is another possibility. It may be that nobody likes pie, or that everybody likes something else better. In this case the game is not played at all. [44]



Given the limited use of zero sum games in explaining international relations, it is easy to see why the conflict between North and South Korea is not zero sum. The two Koreas fall into Waltz's second category described above. The gains and losses involved in any interaction would not be equal. In the context of unification, it would be an oversimplification to think that any agreement, no matter how small, would involve concessions by the North and South that would be equal. Beyond that, a zero sum game assumes exactly opposite interests at the start of the game. In Korea, the two players have a mutual interest, the unification of their country. Thus it is the means to achieve their ultimate interest and not the interests themselves that are in opposition. The South and North will stand to both gain and lose in total unification. These gains and losses would not be equal on both sides since identical situations do not exist in the two countries. The situation then becomes one with both mutual and conflicting interests, or a non zero sum game.

## 2. Non Zero sum Games

There are mutual interests involved in the situation in the conflict between North and South Korea. It will take cooperation in order to achieve these interests. The type of game that best fits is the non zero sum or variable sum

game. This type of game is characterized by having not only rewards for mutual cooperation, but also penalties for mutual non-cooperation. A variable sum game is not only a game of competition, insofar as the contestants try to win from one another; but they are also games of coordination, in that these players will also jointly gain or lose according to their ability to coordinate their moves in accordance with their common interests [45].

The study and application of two person non zero sum games is more complex than the simple zero sum model. Such things as the relative power of one player versus the other, the relative amounts of gains and losses for each side, and the strategies employed by each side must be taken into account when applying this type of game to a real situation. Anatol Rapoport and M. Guyer have established that there are in fact 78 types of two person non zero sum games [46]. The variations in the games are derived from the symmetry or asymmetry of the game based on the ordinal classification of the preferences for a set of given outcomes. These variations tended to make the majority of the games asymmetric.\*

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\*The asymmetry described here comes from the structure of the ordinal preferences in defining the game. It is a function of the relative power differences between the two players of the values achieved by choosing one outcome over another.

The two-person game that will be developed in the next chapter will show that in the case of Korean unification the game is symmetric as far as the ordinal ranking of the possible outcomes is concerned. Each side's best choice is the other's worst. Both are striving for the same ultimate goal, unification, while being caught in the status quo. What is not symmetric is the payoffs that each side would receive from each given outcome. It would be an impossible task to try to quantify the amount of payoffs that would be received or even the ratio of the payoffs for each side for a given outcome. Knowing the amount of the payoffs that each side would gain from a given outcome is not a prerequisite to an understanding of the game and how it works. It is important, however, to realize that there are differences in the payoffs for each side that would be derived from a given outcome. These differences will play a part in the latter stages of the game. Given that the game upon which the model will be based is symmetric, at least from the point of view of the preference order of the outcomes for both sides, there are still two other factors to be determined prior to the establishment of the formal model.

First, the two person non zero sum game can be played in two ways; cooperatively or noncooperatively. The distinguishing factor between them is communication. In a

cooperative game, the players are permitted to communicate with each other directly and to exchange information in advance concerning their intended choices. In a non-cooperative game, overt communication is not permitted but the choice of each player becomes obvious to the other after every play. There is however, a slight ambiguity in this terminology. Even if a game is non-cooperative insofar as the rules prohibit overt or direct communication, it is possible for the players to cooperate tacitly through inferred communication, by which one player interprets the other's intention from the kinds of choices he makes in a long series of plays [47]. In the cooperative game, communication becomes the key to achieving a mutually acceptable solution. It is, in effect, a bargaining situation in the classical sense.

In establishing the model, the non-cooperative game will be assumed. This basically fits the current situation vis a vis the two Koreas. There is at present no formal communication between the two on the issue of unification. Tacit communication does occur in that statements are made by both sides on the issue but are subject only to interpretation by the other side. There is no formal communication that deals with the best cooperative way to achieve a solution to the problem.



Second, a distinction is made in the literature between utility and game models. Utility models focus on the payoff space, that is on the issues in dispute. Game models focus on alternative bargaining strategies, or the ways of dealing with the issues [48]. Utility models are concerned with the actual bargaining situation while the game models are concerned with the strategy and tactics of the players. The model to be constructed for this study will be the game model variety since the main concern is to examine strategies for resolving the dispute. The bargaining process itself will be dealt with as a separate issue. The model as established will aid in understanding the current situation. Beyond that, the model will act as a tool in seeing how to move from the current non-cooperative game to a cooperative game.

#### E. THE MODEL: PRISONER'S DILEMMA AND UNIFICATION

Two prisoners accused of the same crime are kept in separate cells. Only a confession by one or both can lead to conviction. If neither confesses, they can be convicted of a lesser offense, incurring a penalty of one month in prison. If both plead guilty of the major crime, both receive a reduced sentence, five years. If one confesses and the other does not, the first goes free (for having turned State's evidence), while the other receives a full sentence, ten years in prison. Under the circumstances is it rational to admit guilt or deny it? If my partner confesses (so each prisoner might reason), I stand to gain by confessing, for in that case, I get five years instead of ten years, if I don't confess. If, on the other hand, my partner does

not confess, it is still to my advantage to confess, for a confession sets me free, while otherwise I must serve a month. Therefore I am better off confessing regardless of whether my partner does or not. The 'partner', being in the same situation, reasons the same way. Consequently, both confess and are sentenced to five years. Had they not confessed, they would have been sentenced to only a month. In what sense, therefore, can one assert that 'to confess' was the prudent (or rational) course of action. The anecdote is attributed to A.W. Tucker, and the game depicting the situation has been christened appropriately "Prisoner's Dilemma". It is an example of a two-person non-constant-sum game, one in which some outcomes are preferred by both players to other outcomes. The dilemma arises from the circumstance that in the absence of communication and hence of making binding agreements, there is no way of rationalizing the choice of action, which if taken by both players, benefits both. [49]

Prisoner's Dilemma is the type of a two-person game which has a configuration of payoffs that gives both players dominant incentives, in the absence of an enforceable agreement to the contrary, to choose strategies that together yield both players a less desirable outcome than if both had made opposite choices. The game can be either cooperative or non-cooperative in that overt communication between the players may or may not be permitted. In either case the choices, or alternating plays, of each side become obvious to the other side after each round of play. In the case of Korean unification the plays are the alternating proposals made by each side in an effort to elicit cooperation from the other side.



## 1. The 2 X 2 Matrix

The situation in Korea can be viewed in simple game-theoretical terms as a conflict between two parties whose interests do not fully coincide. Both sides assume different values they can derive from the range of possible outcomes of the situation. They also maintain a perception of the values for each outcome that the other player might conceivably receive. This type of game can be represented by a rectangular array or matrix. The horizontal rows represent the decisions available to one player while the vertical columns represent the decisions available to the other player. The cells of the matrix represent the outcomes of these decisions (Fig 3.1). The numbers in the cells can represent (1) the ordinal preference of the possible decisions for each player based on the value, or payoff, of that outcome and his perception of the value, or payoff, of that outcome for the opposing player; or (2) the actual values, in real or relative terms, of the payoff derived from a given outcome.

In a zero sum game the values of the payoffs are symmetrical. What one side wins, the other side loses. Thus, in a zero sum situation, the outcome is the result of the relative power positions of the two players. Each player has a best, or most rational strategy that will

maximize his gains and minimize his losses. Given that both sides act rationally, they each have a "best" choice available to them.

In a non zero sum game the situation is much different. The values of the payoffs derived from the situation are not exactly the same for both sides. This then is a most crucial point. The resolution of the conflict in this situation can go beyond the simple choice of each side for its own most rational choice. It becomes possible through negotiation or arbitration to point out to both sides a compromise solution. This solution may not meet both sides expectations as regards the payoffs from their optimum choice, but it can maximize gains and minimize losses for each side such that the conflict is resolved.

In using a 2 X 2 matrix as a model, its limitations must be recognized. Glenn Snyder and Paul Diesing outline these limitations as follows. First, their interpretation is similar to other models of rational behavior.

Gaming models do not describe the actual play of experimental subjects; they set up a pattern of constraints on the players' choices, and these constraints reward and punish the players in certain ways and induce them to behave in certain ways as they learn to master its dynamics. Similarly, the 2 X 2 game can be used to describe the basic structure of the crisis situation, that is, the game. [50]

Second, they established that the alternative choices available to the players are not necessarily specific strategies but general directions in which specific strategies may travel. The choices are so limited because of the constraints placed on the players by their range of knowledge about the choices and the outcomes of those choices.

Snyder and Diesing make a further distinction between two kinds of matrices: objective and subjective. The objective matrix represents the real structure of the conflict. It consists of the ways in which the military, diplomatic, and economic acts of each player actually affect the other. These ways are determined by the actual resources of the players, the manner in which the resources are deployed, and the resources and probable actions of the other participants [51]. The subjective matrix for each player consists of their own valuations of possible outcomes and his estimate of the valuations of the other player.

It is virtually impossible to construct an objective matrix since the objective situation is not fully known and cannot be quantified. Even if the objective situation were known it is of such fluid nature that an accurate matrix could not be constructed. Therefore, a composite matrix will be constructed displaying both North and South Korea's ordinal preference of outcomes and, inherently, the estimated ordinal outcome preference of the other player.

a. Prisoner's Dilemma as a 2 X 2 Matrix

	B 1 (C)	B 2 (D)
A 1 (C)	(x 1, x1)	(x2, x3)
A 2 (D)	(x3, x2)	(x4, x4)

Figure 3.1 Prisoner's Dilemma as a 2 X 2 Matrix.

Figure 3.1 shows the Prisoner's Dilemma as a 2 X 2 matrix [52]. It is subject to the following conditions:

1.  $2(x1)$  is greater than  $x2 + x3$  is greater than  $2(x4)$
2.  $x3$  is greater than  $x1$
3.  $x3$  is greater than  $x2$
4.  $x4$  is greater than  $x2$ .\*

"C" and "D" represent strategies in which players would "cooperate" or "defect".

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\*The values that the variable 'x' would have assigned would come from a statistical analysis of the utility functions of each outcome for each player. The values that will be listed in figure 3.2 represent the order of choice of the available outcomes, and not the probability of that outcome for the players.

What this means is that for both players, strategy 2 dominates strategy 1 (A2 dominates A1 for the row player and B2 dominates B1 for the column player). However, the choice (A2,B2) results in a payoff (x4) to each player smaller than (x1), the payoff associated with choice (A1, E1) [53].

## 2. Korean Unification as a 2 X 2 Matrix

Given these four outcomes:

1. "peaceful" unification, that is, having the issue settled by bargaining and mutual agreement regardless of the political system (both sides ultimate goal);
2. unification under a communist regime (ROK accepting the DPRK's present proposals);
3. unification under a democratic regime (DPRK accepting the ROK's present proposals);
4. maintenance of the status quo;

it is possible using the above matrix (figure 3.1) to show unification as a 2 x 2 matrix. This matrix is shown in figure 3.2. The numbers within the quadrants are a representation of the order of preference among the four choices for each side. Thus North Korea's choices in order of preference are:

1. unification under a communist system,
2. "peaceful" unification



		North Korea	
		Modify Position (C)	Maintain Position (D)
South Korea	Modify Position (C)	<div>2</div> <div>Peaceful/Joint Unification</div> <div>2</div>	<div>1</div> <div>Communist Controlled Unification</div> <div>4</div>
	Maintain Position (D)	<div>4</div> <div>Democratic Controlled Unification</div> <div>1</div>	<div>3</div> <div>Status Quo</div> <div>3</div>

Figure 3.2 Korean Unification as a 2x2 Matrix.

3. the status quo,

4. unification under a democratic system.

South Korea's order of preference among the choices is:

1. unification under a democratic system,

2. "peaceful" unification

3. the status quo,

4. unification under a communist system.

What can be said about these four outcomes as they apply to the Prisoner's Dilemma? First, neither North nor South Korea sees the status quo as the worst choice. Second, each side sees the opponents most desired outcome as its worst possible outcome. Third, each side prefers a



"peaceful" unification" to the status quo. And lastly, neither side prefers a "peaceful" unification" to its own best choice. The result of this is, as in the matrix in figure 3.1, the preferred choice is the dominating strategy for both North (B2 dominating B1) and South (A2 dominating A1). Specifically, North Korea prefers a communist settlement of unification to either the status quo or a "peaceful" unification. South Korea prefers a democratic settlement to either the status quo or a "peaceful" unification. Thus, the dilemma that faces both sides is: since neither side can have its own best choice, they settle for the status quo. This is done in spite of the fact that the possibility of a peaceful settlement to unification exists (a "peaceful" unification) that might be better for both sides than their own optimal choice. Neither side can choose collective interest over self interest because they are forced to assume that the other will follow the most prudent course [54]. Thus, as in the explanation of the Prisoner's Dilemma, both sides decide it is in their best interest to "confess" and thereby maintain their own best choice as their bargaining position. This causes the status quo to remain in effect.

The basic problem, simply stated, is to get both players to move from choice A2, B2 (Status Quo), to choice A1, B1 ("Peaceful" unification). Solving the dilemma then

has two components. First, the game structure must be moved from non-cooperative to cooperative. This would begin interaction between the players at one or more levels. Second, as the game moves towards being fully cooperative it becomes a classic bargaining situation. Thus, the bargaining process is crucial to the resolution of the conflict.

#### IV. THE ROLE OF THE FOUR MAJOR POWERS

There is little question that the four major powers, the US, PRC, USSR, and Japan play a vital role in Korea. Their interests extend far beyond the unification issue. In areas such as economic or security interests, their policies and roles as actors in the region are relatively easy to identify. Their involvement in the unification issue however, is less clearly defined. Therefore, discussing unification cannot be done without examining the role that the four major powers play. There are five questions that must be answered in order to get at the real nature of the four power's involvement. They are:

1. What are the effects on the Prisoner's Dilemma game when more than two players are involved?
2. What are the interests of each of the powers in Korea?
3. Can any of the four powers play a third party intermediary role?
4. Do the four major powers want Korean unification?
5. What influence do the four powers have on the actions of either of the Korea's?

## A. GAME THEORY AND THE FOUR POWERS

There are two possible roles that extra players in a game can have. First, the extra players can be direct participants on equal status with the other players in the game. Thus far, the discussion of Korean unification has centered on the  $2 \times 2$  matrix. If the role of the four major powers is that of equal players, the game is no longer a two person game, but becomes what in game theoretical terms is described as an  $N$ -person game, with  $N$  being the number of players. The complexity of the game is increased enormously, since the matrix is no longer a  $2 \times 2$  matrix but an  $N \times N$  matrix. The permutations of interaction, strategies, and conflicts becomes so enormous that constructing a model for conflict resolution is a nearly impossible task. It is this dilemma type game that describes the international relations arena. It is for that reason that international relations theory is so complex and diverse in its explanations.

The question to be answered is whether or not Korean unification, with the four power involvement, is to be viewed as this type of game. If this situation existed, each individual player in the game would be on the same level. That is, they would be direct participants in the conflict. As regards the four powers, this is not true for

two reasons. First, the level of involvement of the four powers is not the same as that of the two Koreas. For thirty years, unification has been at the forefront of the two Korea's domestic and foreign policies. This cannot be said for the four outside powers. The risks and the payoffs involved from each of the four possible outcomes are not the same for the outside powers as they are for the two Koreas. Second, the situation in the international arena for the four powers and the two Koreas is much different. The four powers action or lack of action is easily affected by other "games" or conflicts in which they are involved throughout the world.

The second way in which the role of the four outside powers can be viewed in the context of Korean unification is by means of "alliances". What then are the effects that the alliances would have on the unification issue? Studies have shown that group size may have an effect on cooperation in gaming situations. There are two important factors to understand. First, if the goals and interests of the players in a group are for the most part the same, then the game, in this case the Prisoner's Dilemma, is in reality reduced again to a two person game. The factors that affect a two person game that have been previously discussed would apply in this situation. This means that it is possible the two opposing sides; the DPRK, PRC, USSR, and the US, ROK,

Japan may themselves be caught in a "Prisoner's Dilemma" that is larger than the one that involves the two Koreas. This interpretation assumes that there is no linkage between the players on each side. This is definitely not the case. Even on the unification issue, the four powers seem to have more in common (keeping the status quo) than they have differences.

Second, the relationship between the size of the group and the amount of cooperative behavior demonstrated may be positive or negative depending on the way in which individual and group payoffs are affected by variations in the size of the group [55]. The relative payoffs for each member of the group for each of the outcomes will also have an effect on the amount of cooperation exhibited by each player. The larger the group size, the less cooperative behavior is exhibited [56]. The effect that the four powers have on the unification issue can best be determined by looking at the interests each has in Korea, and determining whether or not anyone but the two Koreas really want unification.



## B. THE INTERESTS OF THE FOUR POWERS

Given what each of the four powers gets from its relationship with the two Koreas one almost have to question why the peninsula is deemed to be so important. There is undoubtedly a feeling on the part of the four that since they had a hand in the division of the peninsula they should do what they can to resolve the situation. Beyond that, the interests of the four powers in Korea must be viewed in the context of the international arena.

The Soviet Union's interests can be viewed from a historical perspective. They saw the supposed temporary division of the peninsula in 1945 as a way of expanding their influence in Asia. They have always been reluctant to give up what they have gained. More recently, their interests in Korea can be viewed in the context of Sino-Soviet relations or, the lack thereof. Likewise, China's interests must be viewed in the context of it's relations with the Soviets. It also has an interest in keeping a secure border with Korea. This is much easier to do if a communist nation is in control of that border. For both the Soviets and the PRC the idea of a communist state in power in the North seems to be a better bet than taking a chance, should hostilities occur, a country which is less amenable to their influence would be the result.

Japanese interests can be viewed from the perspective of their main foreign policy goals. The first of these is to keep Northeast Asia stable. This will allow for the rest of the goals to be met. Second, Japan desires to keep good relations with the U.S., Europe, the PRC, and anywhere else where there are strong economic ties. Third, the Japanese desire to spend as little on defense as will be allowed. As long as the U.S. is involved in Northeast Asia, the Japanese defense commitment can be kept to a minimum.

The U.S. interests in Korea are based on two factors. First, the U.S. has strategic interests to protect. Being involved in Korea allows a legitimate excuse for the deployment of U.S. forces to the Far East. Second, and probably more important, U.S. interests in Korea have Japan written all over them [57]. The Japanese lay at the forefront of all U.S. Asian policy. It is therefore logical to expect some similarity between the actions of Washington and Tokyo as regards Korea.

### C. THIRD PARTY INTERVENTION AND THE FOUR POWERS

The basic question to be addressed here is whether or not one of the four major powers can play the role of intermediary in an attempt to settle the unification issue. In the next chapter, the use of a third party is discussed as a

means of increasing communication and trust between two parties in a conflict. The intermediary should be a disinterested party. This is a necessity in order to get and maintain the trust of both parties in the conflict. As experimental studies have shown, to increase cooperation and trust there must either be a mutual like or dislike of the intermediary by both parties in the conflict. None of the four powers meets either one of these criteria. Based on these two factors the chances of one of the major powers involved in Korea acting as a third party in order to increase cooperation are remote. The US, while officially stating that it backs efforts to unify Korea, has done little to aid the situation. In order for the US to act as an intermediary, it would have to establish relations with North Korea. So far no administration has been willing to do so.

The USSR is prevented from aiding unification for three reasons. First, there is the chance that they would, under a unified Korea, lose their influence over the Korean government. This they would never stand for. Second, the tensions between the USSR and the PRC keep the USSR from recognizing the ROK. Third, the basic ideological struggle with the US would prevent them from acting as an intermediary.

The PRC is prevented from acting as a third party for three major reasons. First, the state of Sino-Soviet relations. Recognition of the ROK would upset this already precarious situation. Second, the Sino-American relations that have been growing since 1972 might be adversely affected. Third, PRC relations with Japan would decline.

The Japanese do not like the idea of a unified Korea. If a peaceful solution were found it would leave a large economic and military power that would be in increasing competition with them. If a military solution was to occur in which the North won, the Japanese would have a large communist nation in close proximity. Should that ever occur, Japan would risk losing its economic influence in Korea, confront the prospect of countless anti-communist Korean refugees fleeing to the nearest hospitable shore thereby aggravating Japan's already tense relations with its Korean ethnic minority and complicating Tokyo's new ties with the new Korean regime, and - perhaps - risk being drawn directly into the war as a combatant. [58] Japan is in a unique situation. They are, because of their relationship with both the North and the South, the most likely candidate to act as a third party in increasing cooperation between them. They are not, however, a disinterested party. It is this fact that would make it difficult for the Japanese to act as an intermediary. They also have the most to lose in

a unified Korea. Japan realizes that a unified Korea would be able to close the economic gap with them at a much faster pace. The Korean's could become serious competitors for trade throughout the world. They would never be able to compete head to head with the Japanese, but it is conceivable that their share of the market could grow large enough to get the Japanese worried. One would also have to question what effect the united armed forces of Korea would have on the Japanese rearmament question.

#### D. THE DESIRES OF THE FOUR POWERS

Thus far it has been determined that although the four powers have interests in Korea, (1) they are not tied to unification, (2) from a game theoretical point of view the four powers are neither direct participants in the game nor can the game be described as any more than a two person game that has interested onlookers, and (3) that none of the four powers are either willing to or could act as an intermediary in the situation. The next logical question to answer is whether or not the four powers are truly interested in the unification of the Korean peninsula.

The four powers have expressed and will continue to express their desire for unification. They all, however, view it as a long term prospect and as such prefer not to do



anything which might upset the status quo. The four powers, as Donald Zagoria has argued, are essentially checkmated.

The Soviet Union, China, and the U.S. are all more comfortable with the status quo than any of them would be with any foreseeable change. In particular, as long as both the Soviet Union and China fear any move that might drive North Korea closer to the other major power, both the Soviets and the Chinese will feel their maneuverability is limited. [59]

There are means by which the unification issue can be resolved. The first is by means of conquest. The likelihood of such an occurrence is distasteful to all the four outside powers involved. Second, it is possible that negotiation of an agreement can solve the problem. The negotiations might involve one of the four powers, but this is not likely. Should an agreement occur, another problem then surfaces. Inherent in any agreement is a means to police the agreement. If one of the four powers were involved in the negotiations as an intermediary they would then be the most likely candidate to act as the policeman of the agreement. The key reason none of the external powers want to risk "guaranteeing the guarantee" is simply that none - despite rhetoric to the contrary - see any significant gains from a unified Korea [60]. The other means of obtaining a negotiated solution to the unification problem is to have the two Koreas negotiate the agreement either through a non-interested third party intermediary or by themselves.

## E. THE FOUR POWERS INFLUENCE ON THE TWO KOREAS

The four powers while having a stated interest in Korean Unification will take no actions that will markedly change the status quo. It has been argued that the major powers are neither willing nor able to promote significant progress toward the unification of Korea [61]. The four powers are not willing to force the unification of Korea since, for differing reasons, none of the four would prefer that outcome. This is true now and will probably hold true for the foreseeable future. The four powers then take a hands off policy as regards unification. An example of this was seen in early 1984 when the North proposed talks that for the first time included the ROK with the U.S. This is something the U.S. has pushed for since the 1953 Armistice Agreement. Had the U.S. really been interested in unification one would have to question the motive involved in not taking advantage of the North's concession. The main reason that the four powers may prefer not to deal with the unification issue is that "progress towards unification may tend toward an inverse relationship to stability in the eyes of the major powers" [62]. Wayne Patterson argues that the key factor driving the four powers policy toward Korea is stability. This is done however, at the expense of progress towards unification. He further argues that as a result of

the four powers choosing the stability side of the inverse relationship, there are two prospects remaining.

On the negative side, as long as the major powers prize stability above all else in Korea, this has come to mean a continuation of the status quo, i.e., division...Such an assessment is indeed bleak for the prospects for the eventual reunification of Korea, and if accurate, suggests less likelihood in the coming years. On the positive side, if this analysis is valid, it suggests that the initiative and will toward reunification resides within Korea itself. [63]

The game theoretical analysis tends to support the fact that the power to solve the dilemma is held by the two players themselves. It has been demonstrated that the four powers are onlookers in the basic two-person game. This does not mean that they have no interests in the situation or that they do not derive payoffs from the choices made by the players in the game. The four powers also can exert both a positive and negative influence on the situation. The situation is analogous to a football game. The four powers, like the spectators in a stadium in reality have little influence over the tactical play of the game. This is reserved for the coaches and the players. However, like a crowd at a football game, the four powers can influence the psychological spirit and feelings of the teams as they play. In doing so they can have a net positive or negative effect on either one or both of the teams. Thus, as the

spectators in a game must accept the tactical decisions of the coaches and players, the four major powers must accept the decisions of the two Koreas on unification and adjust their policies to best serve their national and strategic interests based on those decisions. The two Koreas will be making a great mistake if they either wait for support from the four powers or wait for an initiative to come from them. The four powers may not individually or collectively like the fact that the two Koreas might be discussing unification, but because of their relationships with one another will have to abide by any decisions that might be made.

## V. MOVING FROM A NON-COOPERATIVE TO A COOPERATIVE GAME

Korean unification, as it exists today, can be described in terms of a non-cooperative, non-zero sum game. In this form the basic Prisoner's Dilemma is extremely difficult to solve in such a way that the mutually optimal choice is gained by both sides. If a solution were to be achieved at this point, it would most likely be the one in which the status quo (joint competitive solution) were formalized. This would mean that both North and South Korea would receive a lesser amount of payoffs than they would if the dilemma were solved by moving from the joint competitive outcome to the joint cooperative outcome.

The Prisoner's Dilemma assumes that no communication occurs between the two detainees. Even though some discussion (cooperation) has occurred between North and South Korea on the unification issue, it is structurally a non-cooperative situation. That is, each side must formulate its position in a void as to the other side's intentions and strategies. However, some tacit cooperation can be shown to have occurred because of the series of proposals and counter proposals (plays) made by North and South Korea over the years. Each side in the conflict must then act and react



according to the plays made by the other side. With no formal communication between them they must depend on their perceptions to determine the intentions of the other player. Thus, each side's perceptions of the other side's intentions are a the major aspect of the game.

#### A. UNIFICATION AS A NON-COOPERATIVE PRISONER'S DILEMMA

In order for a solution to occur that is close to the joint cooperative outcome, two things must happen. First, the structure of the game must be changed from non cooperative to cooperative. There are a number of ways to accomplish this. The key to being successful is increasing communication and cooperation. Second, as the game moves towards a fully cooperative situation, the two players must negotiate in order to make the move from the joint competitive outcome to the joint cooperative outcome. Prior to the initiation of formal negotiations, both players must understand several factors that affect a cooperative game. Examples are threats made by a player, the effect of interdependence on cooperation, the symmetry of the game, and some psychological factors such as image loss. Once both sides gain an understanding of these factors and how they relate to the cooperative game, the process of formal negotiations can begin.

Malvern Lumsden, in a study of the Cyprus conflict, surveyed the game theory literature and arrived at seven ways to effect change in a non-cooperative game [64]. This change is manifested in the movement towards a cooperative game. These seven factors are applied to the Korean unification issue in order to determine what steps are necessary to create a cooperative two person non-zero sum game. Upon reaching a cooperative game the situation can be handled through negotiation.

#### 1. Displaying the Matrix

Displaying the matrix of outcome preferences to each side may be an important aid to conflict resolution. Studies by Anatol Rapoport and A.M. Chamnah have shown that if both sides in a game have the outcome (payoff) matrix displayed in front of them, their cooperation increases. [65] While not allowing negotiations or cooperation between the two sides, it insures that there is less chance for misperception by either side as to the order of preference of the outcomes involved for each side. One important reason for this is that one or both sides may misperceive the other's utilities for one or more outcomes, so that, subjectively, they play a game different from the "real" one [66]. Karl Deutsch in a discussion of game theoretical research notes:

cooperative behavior doubled in frequency when the payoff matrix was prominently and continuously displayed to both players throughout the game. This effect was observed, even though all the players had been told of the payoff matrix at the start of the game, and their gains and losses were reported to them after every play. This finding may add some support to the view of Immanuel Kant and other philosophers, that fuller awareness of their own situation will make men more likely to behave cooperatively and morally. [67]

As a theoretical example, if North Korea thought that South Korea had as its last preference the status quo, then by threatening war the North could get the South to accept a communist unification. If both sides were operating with similar misperceptions, they would go to war rather than accept their actual last preference in the outcome (payoff) structure.

By displaying the structure of the game, both players gain a realistic understanding of the situation as it exists. Statements and proposals made by one player can then be taken as stated by the other player since the interpretation of that statement or proposal is more accurate than it would be if the players were operating in a void as to the structure of the game.

## 2. Increasing Communication

At this point a basic question must be asked and answered. That question is: what are the minimum essential factors needed in order to have a cooperative exchange? They are basically a mixture of intention and expectation. In a cooperative exchange one player must intend to do what the other expects from him and the other player must intend to do what his opponent expects from him. In doing so, one assumes that an ongoing relationship occurs. Thus it is logical to assume that some form of communication is necessary in order to accomplish a cooperative situation. What is communicated are such things as: intentions, expectations, promises, proposals for modification of the game, and threats. A means of enforcing rules and sanctioning violations must also be established and communicated by both parties.

How then can communication be used as a vehicle for building trust? In experimental studies, Morton Deutsch has shown that:

It is evident that mutual trust can be established in people with an individualistic orientation through communication. Communication is likely to be effective in this area to the extent that the basic features of a cooperative interrelationship are made explicit in what is communicated. These basic features are (1) expression of one's cooperative intention; (2) expression of one's cooperative expectation; (3) expression of one's planned reaction to violations of one's expectation; and

(4) expression of a means of restoring cooperation after a violation of one's expectation has occurred. [68]

An increase in cooperation should result in moving towards the best possible solution for both sides. This has been shown to be true in solving Prisoner's Dilemma in experimental studies. One way to increase cooperation is to increase the communication that occurs between the two sides. This communication can occur at one or more levels at the same time. The North prefers that any communication that occurs be done at the national level. South Korea is more open to the type of communication that would begin at a lower level, such as trade and cultural exchanges, and gradually increase to the national level. The hope here is that an increase in communication would lead to an increase in trust between the two sides. At a minimum, it would promote an increase in understanding and thereby reduce the chance for misperception by both sides.

Even though this phenomena may occur, there is a pitfall. Increasing communication, and thus cooperation, means that in moving towards the optimum solution, some kind of agreement has to be reached between the two parties in the conflict. The inherent problem then is; how is this agreement to be enforced. Unless complete trust on both sides exists, anything less than a completely binding and



enforceable agreement would lead back to the same basic dilemma.

In the Korean situation, the big question would be: who has the authority to punish or coerce? With the US, PRC, USSR, and Japan all heavily interested in Korea for their own reasons, and the inability of the United Nations to settle the unification issue, this question is difficult to answer. What is apparent is that: (1) trust becomes a key factor in any agreement no matter how big or small that occurs between the two Koreas and; (2) in the absence of a "policeman" for any agreement, the tension between the sides must be reduced to alleviate a crisis situation from occurring should a real or perceived deviation from any future agreement occur by one or both sides.

In the absence of an established means of communication the game can not move towards a cooperative situation. There is much to be gained by opening communications. Conversely, there are virtually no negative results involved for either side. Whether the two sides talk directly or through a third party is not important initially, although communicating through an intermediary may ease the domestic pressures applied to the two governments.

### 3. Increasing Trust

Morton Deutsch, states that in a conflict situation:

An individual may be said to have trust in the occurrence of an event if he expects its occurrence and his expectation leads to behavior which he perceives to have greater negative motivational consequences if the expectation is not confirmed than positive motivational consequences if it is confirmed. [69]

In experimental research of trust and suspicion, Deutsch utilized the Prisoner's Dilemma as a means of testing a number of hypotheses. Prisoner's Dilemma is a good vehicle in this type research since the gains and losses incurred by each person are a function of the choices made by one's partner as well as those made by oneself.

Some of the findings from the research done by Deutsch are:

1. There are social situations that, in a sense, do not allow for the possibility of rational individual behavior as long as the conditions for mutual trust do not exist.
2. Mutual trust is most likely to occur when people are positively oriented to each other's welfare and least likely to occur when they are negatively oriented to each other's welfare.

3. Mutual trust can occur even under circumstances in which the people involved are clearly unconcerned with each other's welfare, provided that the characteristics of the situation are such that they lead one to expect one's trust to be fulfilled. Some of the situational characteristics that may facilitate the development of trust appear to be the following:

- a) the opportunity for each person to know what the other person will do before he commits himself irreversibly to a trusting choice.
- b) the opportunity and ability to communicate fully a system for cooperation that defines mutual responsibilities and also specifies a procedure for handling violations and returning to a state of mutual cooperation with minimum disadvantage if a violation occurs.
- c) the power to influence the other person's outcome and hence reduce any incentive he may have to engage in untrustworthy behavior.
- d) the presence of a third person whose relationship to the two players is such that each perceives that a loss to the other player is detrimental to his interests vis a vis the third person. [70]

By increasing trust between the two Koreas, a positive increase in cooperation is possible. In order to accomplish this idea, a third party is almost a necessity. Through this third party it is possible to gradually create trust by producing behavioral results which give direct feedback to the participants [71]. Third party intervention in which the negotiations of international crises were conducted by a mutually trusted intermediary have proven successful. In Korea the use of an intermediary is a possibility since a face to face meeting on substantive issues has not occurred. One advantage of using an intermediary is that there is a fallback position for the opponents to which they could withdraw without directly taking the blame for their rigid stance [72]. This also allows the adversaries to disavow the established communication channel at any given point. In doing so the dispute does not grow into an immediate crisis, but in fact is no worse than before the third party communication link was established. The role of the intermediary can be described in this manner.

If outsiders involve themselves in a conflict situation, the question has been asked in many cases what their role can be to help promote a settlement. The first stage is the collection of information and the identification of issues; second, insight is needed into the history and the emotional tone, or affective load of the conflict; third, alternative positions are explored; and finally, public opinion must be mobilized. [73]

As a minimum, a third party could break through the initial barriers of the conflict and get negotiations started, thereby alleviating the crisis nature of the situation. The establishment of open communications, as Ambassador Walker has suggested, is one of many methods that are possible. Any amount of joint cooperation will have a positive effect on the trust between the two countries. While at less than a full diplomatic level, this "opening of the door" in economic and cultural areas would help over time to build a certain degree of trust. Efforts have been made in the past to establish these small links, but have so far been unsuccessful in building a basis on which increased trust can grow.

There is ~~an~~ another way that third party intervention can be used to increase trust. The previously discussed use of a third party is one in which a symbiotic relationship existed between the game players and the intervening party. However, experimental studies by Morton Deutsch and James Farr have shown that if two people are in the same relationship to a third party, a bond may be established that might not otherwise exist. Thus "if a subject is in a hostile relationship to a third person and he perceives that another person is also in a hostile relationship to the third person, the subject will develop a friendly relationship with the other person" [74]. Conversely, parallel results



have been obtained by Deutsch, Farr, and others that show the same effect when then relationships with the third party were friendly rather than hostile. This fact supports the former suggestion that if a third party intervenes who is in a symbiotic relationship with both game players, trust can easily be increased.

#### 4. Modifying the Matrix

		North Korea	
		(C)	(D)
South Korea	(C)	<div>2</div> <div>Peaceful/Joint Unification</div> <div>2</div>	<div>1</div> <div>Communist Controlled Unification</div> <div>4</div>
	(D)	<div>4</div> <div>Democratic Controlled Unification</div> <div>1</div>	<div>3</div> <div>Status Quo</div> <div>3</div>

Figure 5.1 Korean Unification Matrix.

Given the matrix structure displayed in figure 5.1, it is possible that a change in the relative values of the outcomes for each side may heighten cooperation. It has been shown that by changing the payoffs of the choices it is possible to effect a change in the joint-cooperative outcome (C,C) and the joint-competitive outcome (D,D).

If a significant increase in payoffs to both sides from outcome (C,C) were possible, then cooperation would increase. A decrease in the payoffs from outcome (D,D) such that it would become the least preferred outcome would have two effects. It would first change the Prisoner's Dilemma to the game of Chicken\*, and would in turn increase cooperation. [75]

Another way of increasing cooperation would come from a modification of the matrix in such a way that the possibility of war is decreased. This can be accomplished in several ways. First, any movement by both sides from choice (D,D) to choice (C,C) lessens the possibility of war. Second, by establishing effective communication between the two sides it becomes less likely that one side might perceive the payoffs of choice (D,D) and (D,C) or (C,D) as being equal. Once perceived as being equal there is no incentive not to take one's first choice, which in this case is (D). In all likelihood, this would mean war. Third, through negotiations it is possible to come to an agreement

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\*The game of Chicken is described in this way: two drivers in two separate cars are speeding towards each other. They are both faced with the choice of cooperating and swerving away at the last moment or in continuing straight ahead. If one swerves away and the other does not, they both live and the player who did not swerve is the winner. If both swerve, they both live and there is no winner. If neither swerves away they are both killed and again there is no winner. Unlike Prisoner's Dilemma, there is no reward for mutual cooperation.

that would decrease the chance of war. In Korea this could be a formalized Non-Agression Pact signed by both parties. In doing so, the choice by both players of the joint cooperative outcome (C,C) is enhanced. This is true in the sense that choice (C,C) would have a more predictable, positive outcome than the high risk first preference, (D,C) or (C,D), of either North or South Korea. The payoffs of choice (D,D), the status quo, would be reduced making it easier for both sides to cooperate and jointly choose outcome (C,C).

The threat of military intervention by a third party is another way of modifying the structure of the matrix. In the case of Korea this is not feasible. The four outside powers that are involved in the region find it difficult to act unilaterally due to the constraints placed on them by their relationships with the other outside actors. It is possible to see the economic and military power that would come from a united Korea. However, with the interests of the U.S., USSR, Japan, and the PRC intertwined in Korea, it would be difficult to affect a change in the existing payoff structure through third party unilateral intervention. It is possible that in doing so, since the basic structure of the game is changed, the chance of hostilities is increased and if started could easily escalate into international confrontation.

Even if no action by either side is taken the matrix is modified by the passage of time. There is a possibility that, as time goes by, values underlying the conflict will be superseded by new values conducive to cooperative behavior [76]. If the values do change over time it may be possible to utilize a third country to increase cooperation between the North and the South. This would be done in the role of mediator in that the third party would assist in establishing contacts between the two Koreas. It would not include the threat of military intervention. Ideas along these lines have been presented by Richard L. Walker, the present U.S. Ambassador to the ROK, in a paper presented to the Symposium on Functional Approaches to Unification in March 1980. His ideas include using a third country to: open up dialogue, increase trade by indirect means, and to help establish open communications between the two Koreas. [77]

There are, however, negative aspects involved in viewing time as a vehicle for matrix modification. As time passes "the status quo (now three decades since the end of the Korean War) approaches the status of tradition and as such becomes ever more entrenched and less likely to be altered" [78].

## 5. Reducing Misperceptions

Studies in game theory have demonstrated that perceptions (or misperceptions) of the opponent and his strategies play a vital role in a conflict. They are, however, the one major element that is left out of the theoretical aspect of games. If misperceptions are to be reduced and the pitfalls they cause eliminated it becomes a necessary requirement to seek and understand the causes for misperceptions. Robert Jervis has studied misperception in international relations in depth and has outlined several hypotheses concerning their origin [79]. Understanding these sources of misperception is critical in a case, such as Korea, where long standing divergent views on reconciliation have existed. It is complicated by the ideological differences that separate the two countries. A basis for real communication can be established and maintained once the chance of misperception of action or intentions is reduced. It also aids in establishing trust between the two parties in the conflict.

Misperceptions are seen as having negative influences. Player A (South Korea), for example, may reason that since North Korea is "bad" and the ROK is "good" it is rational to choose and stay with its first outcome choice since the North will certainly stay with their first outcome



choice. While this may not be true for both sides, it is difficult to change these misperceptions for two reasons:

1. perceptions are the result of extended socialization through the family, the media, the school, religious institutions, and the military service,
2. in a conflict situation, perceptions become more polarized due to a moral self image and military overconfidence. [80]

The longer the two Koreas remain apart, the greater influence socialization will have on both societies. Likewise, increased polarization is likely to occur as time passes. It then appears that the longer the separation the greater the likelihood that misperceptions will be maintained by both sides. This can be reduced by just opening effective communication between the two, then by increasing the trust each has of the other.

#### 6. Modifying Strategy

The basis for this idea lies in increasing cooperation for one side by manipulating the strategy of the other player. As Lumsden determined in the Cyprus case: applying this approach in the real world entails persuading one (or both) parties to adopt a more cooperative strategy. This may be easier to do as a member of a nation in conflict than as an outsider. [81] Lumsden uses the Graduated

Reciprocation in Tension Reduction (GRIT) strategy of President Kennedy as an example of how this could be done. In modifying a player's strategy, one assumes that they desire increased cooperation. One must also assume that the relative weights (power) of the players are equal. This situation of equality is known as a symmetric game. However, if an asymmetric game exists (one player stronger relative to the other), then this approach is not as applicable. The idea of game symmetry will be discussed later.

Militarily, the two Koreas are more equal now than at any previous time. Thus a modification of strategy by one or both sides is, for the present time, a viable option. Strategy modification would involve one side taking a new approach to the current conflict of interests that is inherent in the situation. As with the GRIT strategy, if the ROK were, as an example, to unilaterally decrease the size of its armed forces it would be a basic change in their approach to unification. Knowing that other strategies have not been successful, this reduction would be done in order to extract a similar concession from the North, or as a minimum to demonstrate sincerity in wanting to negotiate.

The question of perception comes to the forefront again in the area of attempting to modify a player's strategy. There exists the possibility that the intention of one side, however sincere, in modifying its strategy may

be perceived as devious behavior intended to undermine the opponent. However, thorough knowledge of the sources of misperception as outlined by Jervis and an understanding of the role they play in a conflict will help to avoid negative effects on strategy modification. Knowing that misperceptions do occur, along with the fact that strategy modification cannot readily be achieved by outside influence as easily as a member of the conflict, will make strategy modification by one side or the other difficult but not impossible. It most likely can be used to aid in the establishment of serious communication between the two Koreas on the unification issue.

#### 7. Modifying the Rules of the Game

As Iumsden states:

the structure of a game is defined by the rules, which define the choices available to each player, the payoffs, and the identity of the players. If the rules are changed, behavior may also be changed. In the real world, however, it is frequently the rules of the game which are disputed. [82]

This idea has at its core changing the values (payoffs) obtained from the possible choices for each player. Another possible way to modify the game's rules would be to develop one or more new choices (outcomes) that would have the same

or greater payoff as each sides first or second choices. For example: is there a political system that would satisfy the needs of both North and South Korea in a confederated unification, or as a minimum insure peace between them? Or, is it possible to somehow formalize the status quo? By doing so, formal recognition of each side by the other could occur. This would provide for an effective means of communication that could then work for a final solution. It can be assumed that once this action is taken a reduction in tension between the parties in the conflict would occur.

Within the area of strategy modification a chance for progress on the unification issue exists. How to do it is another question. In this instance, help from a third party would be extremely beneficial. The key is to redefine the rules so that both sides can agree to a mutually optimal solution. In theory it sounds easy. In practice it would be a difficult and risky process.

## VI. UNIFICATION AS A COOPERATIVE GAME

At the outset, the Korean unification issue was described as a two-person non cooperative variable sum game. In particular the situation has been described in terms of a Prisoner's Dilemma. The game thus far has been seen in the context of basically no communication occurring between the sides. The last section described ways in which it is possible to modify the non-cooperative nature of the game. The key area, however, is communication. Once effective communication is established it is possible to utilize the other ways of further modifying the matrix, thereby changing the situation to a cooperative form of two-person game.

From this point on, the ideas outlined can constitute the basis for strategies by which movement towards a solution are possible. It is then assumed that at this point on, that the Prisoner's Dilemma becomes a cooperative game. In terms of Korean unification, the game would not move from a non-cooperative game to a cooperative game unless some action is taken by both sides in the conflict to change the status quo. The change does not have to be an immediate move to the joint cooperative (C,C) outcome. An examination of Figure 6.1 will reveal why. The graph shown represents



the payoff matrix for Korean unification as it currently exists. As in the matrix representation of the situation, exact numbers are not assigned to the payoffs. . Once again,

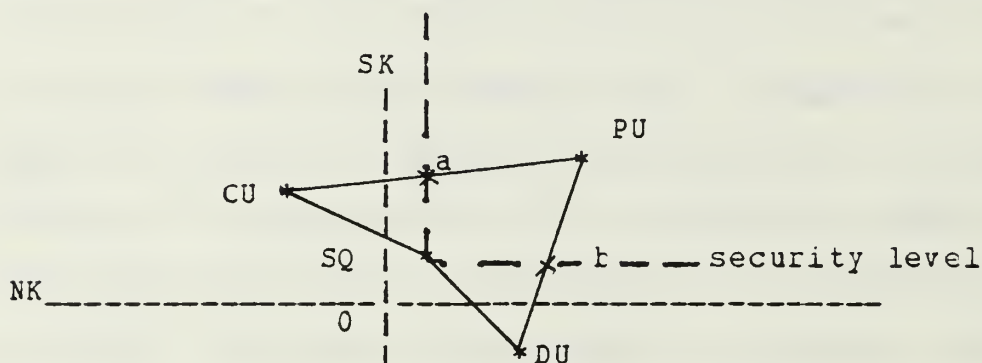


Figure 6.1 Korean Unification Bargaining Space.

it is the relative values of the payoffs that are important.

The payoffs that each side might conceivably obtain from each of the four given outcomes can be explained as follows:

1. point SQ, the status quo, shows that both North and South Korea are deriving positive payoffs. However, South Korea is getting a lesser amount of payoffs than it would receive from its first choice (DU) or from peaceful unification (PU). North Korea is getting less payoffs than it would from its first choice (CU) or peaceful unification (PU).
2. the amount of payoffs for South Korea at point (DU) are less than they would be at point (PU).

3. the amount of payoffs that North Korea would get from point (CU) are less than they would be at point (PU).
4. point (PU), peaceful unification will allow the greatest amount of payoffs for both players.

The security level is defined by the lines from the SQ to points a and b. Line SQ-a is the security level for the North and line SQ-b is the security level for the South. This line represents the level at which the payoffs begin to be less than they are at point SQ. Thus, if one player begins to receive payoffs that are less than they derive from the status quo, there no longer is an incentive to stay with the status quo. In terms of Prisoner's Dilemma, it would be the point at which the choice to defect, or take one's first choice, appears to be the prudent course of action. In such a case, a war is the likely outcome.

Given the graphic representation of the relative payoff structure and the fact that a cooperative situation exists, the solution to the game then becomes a bargaining problem. The possible set of solutions to the game can be shown to lie in the area bounded by points a, PU, b, and SQ. This area is known as the bargaining space. Thus, the number of solutions is virtually infinite. One must distinguish, however, between interim and the final solution. An interim solution is one in which the payoffs gained by both sides lie within the bargaining space. This assumes a negotiated

agreement has occurred that benefits both sides. There are possible solutions that lie outside the bargaining space, but whose results would in all probability be disastrous. The optimum final solution is, of course, represented by point PU. However, any solution within the bargaining space can be the final solution if agreed to by both sides. The important fact to remember is that it is not necessary to move directly from SQ to PU. Any agreement, whether interim or final, that nets a greater amount of payoffs for both sides than the status quo will have a positive result on the conflict.

Prior to engaging in the play of the cooperative game it is necessary to understand several factors that impact on the play of the cooperative game. They are all factors that can have adverse effects on the final outcome of the game. However, like misperception, if their role in the game is understood prior to playing the game, their effects can be minimized. The cooperative form of the game begins a bargaining situation in which both parties will try to maximize their gains and minimize their losses. Volumes have been written on the subject of bargaining and negotiation. One could not possibly cover all the aspects of bargaining theory as they might apply to this game. There are however a few important factors that can affect the game at this point. It is to the advantage of both players to have know how they can affect the play of the game.

## A. THE EFFECTS OF INTERDEPENDENCE ON COOPERATION AND COMPETITION

Morton Deutsch, a pioneer in game theory, has developed a set of concepts that describe the effects of interdependence on competition and cooperation. Deutsch describes a cooperative situation as one in which the goals of the participants are so linked that any participant can attain his goal if, and only if, the others with whom he is linked can attain their goals. They are "promotively interdependent" in that there is a positive correlation between the attainments of the two players. A competitive situation is one in which the goals for the players are "contriently interdependent", that is there is a negative correlation between their goal attainments. [83] The effects of interdependence on cooperation and competition are shown in Tables One and Two [84]. Deutsch states that these tables present in a condensed outline form some of the basic ideas involved in his analysis of the effect of cooperation and competition.

In essence, the theory states that the effects of one person's actions upon another will be a function of the nature of their interdependence and the nature of the action that takes place. Skillfully executed actions of an antagonist will elicit rather different responses than skillful actions from an ally, but a bumbling coordinator may evoke as much negative reaction as an adroit opponent. The theory links the type of interdependence and type of action with three basic social-psychological



TABLE I  
Effects of Interdependence on Cooperation

Type of perceived interdependence between F & O (A)	Type of action by O (B)	Effects of O's actions on P (C)	Consequences of an exchange of effective action between F & O (D)
Cooperative: P's and C's goals are linked in such a way that their probabilities of goal attainment are correlated positively; as one's chances increase or decrease, so does the others chances	Effective: O's action increases O's chances of goal attainment and, thus, also P's	Positive substitutibility: P will not need to act to accomplish what O has accomplished.  Positive cathexis: P will value O's actions and will be attracted to O in similar, future situations.  Positive inductibility: P will facilitate O's actions and will be open to positive influence from C.	Task Orientation: highlighting of mutual interests; coordinate division of labor and specialization of function; substitutibility of effort rather than duplication; the enhancement of mutual power becomes an objective.  Attitudes: trusting, friendly attitudes with a positive interest in the other's welfare and a readiness to respond to the other's needs and requests.
	Ineffective: O's action decreases O's chances of goal attainment, and, thus, also P's	Negative substitutibility: P will need to act to accomplish what O failed to accomplish  Negative cathexis: P will reject O's actions and will reject O in similar future situations.  Negative inducibility: P will hinder O's actions and will be negatively influenced by O.	Perceptions: increase sensitivity to common interests while minimizing the salience of opposed interests, a sense of convergence of beliefs and values.  Communication: open, honest and relevant information, each is interested in accurately informing as well as being informed, communication is persuasive rather than coercive intent.



TABLE II  
Effects of Interdependence on Competition

Type of Perceived interdependence between P & O (A)	Type of action by O (B)	Effects of O's actions on P (C)	Consequences of an exchange of effective action between P & O (D)
Competitive: P's and O's goals are linked in such a way that their probabilities of goal attainment are negatively correlated; as one's chances increase, the other's decrease	Effective: O's actions increases O's chances of goal attainment and thus, decreases P's chances	Negative substitutability: P will need to act to accomplish what O has failed to accomplish.  Negative Cathexis: P will dislike the occurrence of O's successes and will reject O as a future competitor.  Negative Inducibility: P will hinder or block O's action and react negatively to O's influence attempts.	Task orientation: emphasis on antagonistic interests; the minimization of the other's power becomes an objective.  Attitudes: suspicious, hostile attitudes with a readiness to exploit the other's needs and weakness and a negative responsiveness to the other's requests.  Perception: increases sensitivity to opposed interests, to threats, and to power differences while minimizing the awareness of similarities.
	Ineffective: O's action decreases O's chances of goal attainment and, thus, increases P's chances	Positive Substitutability: P will not need to repeat O's mistakes.  Positive Cathexis: P will value the occurrence of O's failures and will prefer O as a future competitor.  Positive Inducibility: P will facilitate O's blunders and be ready to help O make mistakes.	Communication: little communication or misleading communication; espionage or other techniques to obtain information the other is unwilling to give; each seeks to obtain accurate information about the other but to mislead, discourage, or intimidate the other; coercive tactics are employed.

processes- which I have labeled "substitutibility", "cathexis", and "inducibility"- and it then proliferates a variety of social-psychological consequences from these processes as they are affected by the variables with which the theory is concerned. [85]

Deutsch defines these three processes in this manner:

1. substitutibility- the willingness to allow someone else's actions to be substitutable for one's own,
2. cathexis- the development of positive or negative attitudes,
3. inducibility- the readiness to be influenced positively by another. [86]

By examining column 'C' in Tables 1 and 2 one can see that in order to settle a bargaining situation, the two players would have to be operating in the cooperative environment of Table 1. In fact, the two Koreas appear to be in parts of both the competitive and the cooperative environments. In order to settle the unification issue, interdependence between North and South Korea will have to be of the fully cooperative nature shown in Table 1. Further, the actions taken by either side in an effort to cooperate will have to be of the "effective" type as shown in column 'B' of Table 1. The move towards a fully cooperative situation can be enhanced by any means that highlight mutual interests. However, the past and current situations in Korea on unification have been and are increasingly competitive. Deutsch

cites such things as: attempts to reduce the other player's power; suspicious, hostile, exploitive attitudes; the magnification of opposed interests; using factors of threat, intimidation, or coercion; devious communication; and espionage as means of increasing the competitive relationship. Many of these factors exist in the relationship between the two Koreas.

#### E. THE EFFECTS OF SYMMETRY

An asymmetric structure has effects on two parts of the game. First, the relative bargaining power of the two parties involved will have a profound effect on the outcome. In the situation of the two Koreas, such things as economic power, political stability, military power, and the socialization process must be taken into account in determining the power of each side relative to the other. For example, if one side has a much greater military strength it should be able, by means of a threat to use its military power, to have the situation settled in a way that is closer to its own most desired outcome. This outcome would be farther from the opponents most desired outcome and might, depending on the fear of the threat, be closer to the opponents worst outcome.

Asymmetry can also affect the payoff structure of the game. If, for example, the payoffs of a given outcome were significantly greater for one side than they were for the other, the side with expectations of a greater outcome would be more willing to settle than the side that would receive a smaller payoff from that same outcome. One would then see a situation where the relative payoffs would become more important than the outcome itself. In this situation, there would be a significant decrease in cooperative behavior. A study has shown that:

one interpretation of the obtained differences in cooperation in the asymmetric game condition is that the subject's concern centered around relative outcome rather than personal gain and consequently the only option available to the low reward subjects was to avoid cooperative play, thereby minimizing other's actual outcomes. [87]

This then becomes another reason that the situation needs to begin movement towards a settlement now. In the future, South Korea will become ever more economically powerful than the North. Thus asymmetry enters the game and as time passes the South will be less willing to settle the situation as the payoffs received from the status quo increase. At the same time, the payoffs from a peaceful unification are likely to be perceived by the South as being less than they are now, in relative terms, given the turmoil of mixing



the two economies should unification occur. This would also mean that the payoffs for the status quo and the South's first choice (democratic unification) would be growing closer to the same, at least in economic terms. If they are perceived as being the same, then the situation becomes unstable since there would be less incentive to stay with the status quo. If this were to be combined with a military advantage by the South at some point in the future, the results could be disastrous.

### C. TEMPTATION AND THREAT

One basic premise of Prisoner's Dilemma is that each player is tempted to doublecross the other to obtain an immediate larger gain for himself, or to maximize his gain relative to the other, or to protect himself from the possible treachery of the other [88]. While this is true, each player is also kept from defecting by the fear of retaliation from the other side. Whether a player demonstrates cooperative behavior or not is dependent on the size of the payoffs he is liable to receive from the four outcomes [89]. In the case of Korea, if the payoffs for one side were to change in a large way for one or more of the given outcomes, then the chances of non-cooperative behavior (defection) are increased. In figure 5.1, all the outcomes



except for (A1,B1) have inherent in them the possibility of a war. We could surmise, for example, if the payoffs for North Korea of the status quo and a communist led government were to become nearly the same, then North Korea would be tempted to defect and would take the steps necessary to achieve its most desired outcome. Even if no action were taken on its part, the threat of action could cause the other side to settle. This assumes, of course, that the South would perceive the North's payoffs for the two outcomes the same way as the North does. Whether this happened would depend on the relative costs of defecting as compared to the relative payoffs. One other thing to keep in mind is that as long as the payoffs of the status quo are greater than those of the two sides first choices, then it is likely that there is where the situation will remain. That is, unless the payoffs of joint cooperation can be increased in real terms for both sides in the conflict, or both sides see that it is in their best interest to begin movement towards the cooperative solution.

#### D. POSITION AND IMAGE LOSS

Once communication and bargaining begin, relative position and loss of image enter the situation. This is where the "personalities" of the two Koreas come into play. Since

the two players in this situation are governments it is much more complicated than dealing in the simple situation of two individual players. However, some of the same principles still apply. The major factors involved in this area are:

1. bargainers are reluctant to make concessions lest they be made to look foolish or weak,
2. subjects will be motivated to do better than their adversary, even at the risk of not reaching an agreement,
3. participants in a first or one-time only bargaining exchanges are likely to be less sensitive to the image loss implications of their concession than are the participants in repeated encounters or in an ongoing relationship,
4. bargainers in an ongoing relationship are more likely to discriminate among various levels of appearance and to be particularly sensitive to the loss of image associated with low-level concessions- perhaps because such concessions are regarded as setting a dangerous precedent that invites higher-level concessions at a later time. [90]

When one applies the decision making process in each of the countries to the bargaining process it is easy to see how the loss of image and position vis a vis the other party is important. Internal political realities make image loss

important. As has been stated, as time passes it will become increasingly difficult for concessions to be made by either side on the unification issue. Even if one side made a concession, the problem of how the other side would interpret it comes into play. No matter how sincere the proposal or concession, it might be interpreted as a scheme to undermine the position of the opposing side and therefore rejected. Given that there are perceived domestic restraints preventing action by the two governments, a bold initiative by one side or the other is necessary. Likewise it is important that once the initiative is made the other player accept it. Both sides in the conflict have a common enemy, time. The passage of time not only brings further socialization of the status quo but also will bring a generation that does not remember having lived in a united Korea.

In both the cooperative and non-cooperative games discussed above, it must be remembered that all of these factors inherent in both types of games are at work on the situation at all times. It is difficult to isolate one factor and deal with it. Even if it could be done, these factors have a certain amount of interdependence. Action on one of them causes reactions in the others. What is obvious is the fact that the only solution to the problem lies in increasing cooperation between the two parties.

## VII. NEGOTIATING SUCCESSFULLY IN A COOPERATIVE GAME

Negotiations are but one of many means available to resolve conflicts. They will however, be a central factor in any peaceful solution to the Korean unification problem. Bargaining and negotiation are in fact a subset of the larger area of game theory. They become important in resolving any cooperative non zero sum game; in this instance, the Prisoner's Dilemma.

Before discussing a new approach to bargaining, one must have a clear idea or definition of the term. According to Fred C. Ikle, two prerequisites are necessary in order for negotiations to take place. First, there must be common interests between the parties. Second, there must be issues of conflict. Without common interests there is nothing to negotiate for, without conflict there is nothing to negotiate about. [91] In Korea, one must assume that there are common interests between the North and the South. If they do not exist, then finding a solution other than the status quo will be extremely difficult. There are certainly many points of conflict between the two countries about which negotiations can take place. The Korean unification issue meets both of Ikle's prerequisites for negotiating.

Ikle formally defines negotiation as: the process in which explicit proposals are put forward ostensibly for the purpose of reaching agreement on an exchange or on the realization of a common interest where conflicting interests are present. Frequently, these proposals deal not only with the terms of agreement but also with the topics to be discussed (the agenda), with the ground rules that ought to apply and with the underlying technical and legal issues [92]. With this in mind, the discussion can now move to a new approach to bargaining which, if followed, will make any future discussions between the North and the South more productive.

Up to this point the stalemated unification situation in Korea has been explained in terms of game theory. This has been done in order to gain a better understanding of the situation. Game theory, specifically the Prisoner's Dilemma model, has been used to explain why the situation continues to exist, the factors that have an effect on the "game", and a number of possible methods through which it is possible to move towards a solution of the issue. Chapter 3 explained the existing situation in terms of a two person non zero sum non cooperative game. Chapter 5 explained a number of factors that could cause the situation to change from its non-cooperative form to a cooperative two person non zero sum game. In this chapter it is assumed that a move by both North and South Korea has been made such that both agree to substantive discussions in an effort to solve the situation.



The two times that the North and the South agreed to talk formally about unification, 1972 and 1979, the discussions failed prior to any substantive talks on the unification issue. Thus, should the two Koreas again find themselves in such a situation, a new method of negotiation that has a higher probability of success should be used. Such a method is outlined by Robert Fisher and William Ury in their book, Getting to Yes: Negotiating an Agreement Without Giving In. What follows is a brief summary of Fisher and Ury's ideas and an application of those ideas to the Korean unification problem.

#### 1. Principled Negotiation

According to Fisher and Ury, the majority of people in the world see basically two ways to negotiate; hard and soft. On one hand the soft bargainer tries to settle the conflict in such a way that he is likely to give concessions easily. More often than not this ends up with the soft bargainer being taken advantage of since he will sacrifice some of his interests in order to simply reach an agreement. Conversely, the hard bargainer will not make any concessions for fear of an agreement in which he has to compromise his interests. In such a case, the negotiations are likely to drag on a very long time thus allowing frustration and hatred to enter between the parties who are negotiating.

Fisher and Ury state that there is a third method of negotiation which comes between soft and hard negotiating styles and which in the long run is more likely to produce a lasting solution that leaves the relationship between the negotiating parties intact. They call this method "principled negotiation".

The method of principled negotiation is to decide issues on their merits rather than through a haggling process focused on what each side says it will and will not do. It suggests that you look for mutual gains wherever possible, and that where interests conflict, you should insist that the result be based on some fair standards independent of the will of either side. The method of principled negotiation is hard on merits, soft on the people. It employs no tricks and no posturing. Principled negotiation shows you how to obtain what you are entitled to and still be decent. It enables you to be fair while protecting you against those who would take advantage of your fairness. [93]

Both North and South Korea have been hard bargainers on the unification issue since 1950. Neither side has been willing to make any concession. Therefore the relationship between the two has not improved any in thirty years. Principled negotiation will provide the best chance for the two Koreas to begin to move from the status quo to a solution of the unification problem. What is certain is that a continuation of the existing situation is not in the interests of either of the two sides. As long as both sides bargain from firm "positions", a solution is unlikely.

## 2. The Problem: Positional Bargaining

Fisher and Ury state that any method of negotiation should be judged on three criteria. It should produce a wise agreement if agreement is possible, it should be efficient, and it should improve or at least not damage the relationship between the parties [94]. It is extremely important that the relationship between the two Koreas get no worse than it is today. A decline in the current relationship can only mean a resulting increase in tensions between the two and an increased chance of hostilities breaking out.

According to Fisher and Ury, positional bargaining produces unwise agreements, is not efficient and endangers the long term relationship between the two parties. The following points illustrate their ideas:

1. When negotiators bargain over positions, they tend to lock themselves into those positions. The more you clarify your position and defend it against attack, the more committed you become to it.
2. As more attention is paid to positions, less attention is devoted to meeting the underlying concerns of the parties. Any agreement reached may reflect a mechanical splitting of the difference between final positions rather than a solution carefully crafted to meet the legitimate interests of the parties.

3. Bargaining over positions creates incentives that stall settlement. In positional bargaining you try to improve the chance that any settlement reached is favorable to you by starting with an extreme position, holding to that position, deceiving your opponent as to your true views, and by possibly making small concessions in order to keep the negotiations going. All this increases the time and costs of reaching agreement as well as the risk that no agreement will be reached at all.
4. Positional bargaining becomes a contest of will. Each side tries through sheer power to force the other side to change its position. Thus it strains and sometimes shatters the relationship between the parties.
5. When there are many parties involved in the situation, positional bargaining is even worse. In such situations, it leads to the formation of coalitions among parties whose shared interests are often more symbolic than substantive. What is worse, once the coalitions have agreed upon a position, it becomes much harder to change it since it requires the consent of the group. [95]

This last point is important when considering the role of the four major powers and their effect on the unification

issue. They at present are not providing any assistance or support to either side on this issue. None of them sees unification as being in their short term interests. Thus, the initiation of a move towards unification will have to come from inside Korea itself.

In order to get around positional bargaining, Fisher and Ury have developed the method of principled negotiation. It can basically be summed up in four points: separate the people from the problem, focus on interests not positions, invent options for mutual gain, and insist that the result be based on some objective standard.

a. Separate the People from the Problem

Human beings have many faults. They are not the most ideal vehicle that one could imagine to be used to settle conflicts. It is impossible for humans to separate themselves from their feelings and emotions. Thus, perceptions of the other sides intentions and the the communication of one's own ideas becomes difficult. According to Fisher and Ury taking positions in a negotiation makes this worse because people's egos become identified with their positions. The "people problem should be dealt with as an issue separate from the substantive problem. The participants must come to see themselves as working together on the problem and not attacking each other" [96]. In order to



deal with the "people problem" as a separate issue aside from the main issue, Fisher and Ury suggest that there are three categories of problems that must be solved. The first is perception. The effects of this area have previously been discussed. However, the following ways are described by Fisher and Ury in order to help eliminate perception of the other party as being a problem:

1. put yourself in their shoes,
  2. don't deduce their intentions from your fears,
  3. don't blame them for your problem,
  4. discuss each other's perceptions,
  5. look for opportunities to act consistently with their perceptions,
  6. give them a stake in the outcome by making sure they participate in the process,
  7. make your proposals consistent with their values
- [97].

The second area is emotions. No matter how hard one tries, emotions have an innate ability to pervade the negotiation process and destroy it. This involves not only the personal emotions of the negotiators, but also the national emotions felt by the members of a country and applied as public pressure to the negotiators. To reduce the effects emotions have on negotiations Fisher and Ury would apply these factors to the problem:

1. recognize and understand emotions, theirs and yours,
2. make emotions explicit and acknowledge them as legitimate,
3. allow the other side to let off steam,
4. don't react to emotional outbursts,
5. use symbolic gestures that produce a constructive emotional impact on the other side [98].

The third area is communication. Bargaining cannot exist in the absence of communication. The importance of this one area to the overall process of conflict resolution cannot be understated. It is the single most important factor in the negotiations. There are three big problems in communication. First, negotiators may not be talking to each other in a way which is understood. Second, even if you are talking to the other side directly, they may not be hearing you. Third, misunderstanding a given communication is possible through misinterpretation. [99] In order to minimize this problem one must:

1. listen actively and acknowledge what is being said,
2. speak to be understood,
3. speak about yourself, not about them,
4. speak for a purpose [100].

## b. Focus on Interests Not Positions

According to Fisher and Ury, if a negotiation focuses on positions, the ensuing agreement will necessarily satisfy the human needs of either side that led them to take their position in the first place. In other words, the interests of both sides are not best served in such an agreement. They use this anecdote to illustrate satisfying what at first are irreconcilable positions in such a way that both parties actual interests are best served.

Consider the story of two men quarrelling in a library. One wants the window open and the other wants it closed. They bicker back and forth about how much to leave it open: a crack, halfway, three quarters of the way. No solution satisfies them both. Enter the librarian. She asks one why he wants the window open: "To get some fresh air". She asks the other one why he wants it closed: "To avoid the draft". After thinking a minute, she opens wide a window in the next room, bringing in fresh air without a draft. [101]

This classically illustrates the idea of bargaining from positions and shows the problems involved in doing so. Positional bargaining does not meet the definition of negotiations as defined by Fred Ikle: the process in which explicit proposals are put forward ostensibly for the purpose of reaching agreement on an exchange or on the realization of a common interest where conflicting interests are present [102].

What then defines the problem; the difference between the negotiating positions or the conflict between each side's needs, desires, concerns, and fears? As Fisher and Ury state, the interests of the two sides define the problem and not the positional differences between them. What must be done is to (1) identify the interests of both parties, and (2) discuss the interests of both parties in order to reach an agreement that satisfies the needs of both sides. This, not splitting the difference between bargaining positions, will provide an agreement that will be meaningful and will not harm the long term relationship between the negotiating parties.

#### c. Invent Options for Mutual Gain

Once principled negotiation is started, the options available to each side, theoretically, are increased. The parties are no longer locked into two opposing positions from which and about which to negotiate. If both sides see that the problem lies in the difference of interests and not in the difference of their positions, a wide range of subjects about which negotiations can occur becomes available. The problem then becomes one of how to reach an agreement such that the actual interests of both parties are met. To do so, Fisher and Ury suggest inventing a wide range of options that will allow for the maximum amount of gains for both parties. This can be done by:

1. separating the act of inventing options from the act of judging them,
2. broadening the options on the table rather than locking for a single answer,
3. searching for mutual gains,
4. inventing ways of making the decisions easy for both sides [ 103].

If these suggestions are utilized, the negotiating parties can come to the realization that the situation is not a zero sum game. The solution to the situation does not necessarily lie on the straight line between the two sides negotiating positions. There are in fact many mutual interests involved. The key is to insure that the actual interests of both sides are met. A worthwhile, lasting agreement is to be judged by this, not merely on the fact that an agreement was reached.

#### d. Insist on Objective Criteria

In attempting to solve the problem between the negotiating parties, there will at some point be interests that conflict. Once the shared interests have been recognized, the conflicting interests must be discussed. Again, positional bargaining will prove to be a hinderance in reaching an agreement. To solve this problem, Fisher and Ury suggest the use of objective criteria in working out the



differences between the parties. Another of their examples illustrates this point.

Suppose that you have entered into a fixed-price construction contract for your house that calls for reinforced concrete foundations but fails to specify how deep they should be. The contractor suggests two feet. You think that five feet is closer to the usual depth for your type house. Now suppose the contractor says: "I went along with you on steel girders for the roof. It's your turn to go along with me on shallower foundations". No owner in his right mind would yield. Rather than horse-trade, you would insist on deciding the issue in terms of objective safety standards. [104]

As long as objective standards can be applied to the conflicting interests, an agreement can be reached. This agreement may not fully meet the interests of both parties. But in the instance where there must be compromise it is based on facts that both parties have agreed to in an objective manner and leaves both sides feeling that they have won, not lost. They also understand the objective reasons why the compromise was necessary.

### VIII. CONCLUSIONS

The discussions in this thesis have utilized game and bargaining theory as a means of understanding the problem of Korean unification. Through the use of game theory, a theoretical model of the current situation in Korea was established. It was shown that there is a correlation of that situation and the Prisoner's Dilemma game. In chapter 1, the author stated that the rational approach to game theory is useful in a number of areas. The two areas that this thesis discussed were:

1. the rational approach to game theory is useful for explanation of people's behavior (in situations which their behavior exhibit high degrees of rationality and therefore admits an explanation in terms of a rationalistic theory) and,
2. game theory in this rationally defined situation can provide for strategy recommendations for the various participants.

Given the definition of rationality developed by March and Simon and the application of that definition to Korean unification, it has been possible to explain the behavior of the two Koreas. This has been done in order to gain an

understanding of the situation, the reasons the situation continues to exist, and to see how the behavior exhibited over the last thirty years can be modified.

With an understanding of the situation and the factors that affect the situation, it is possible to provide strategy recommendations to the players. Korean unification has been defined as a Prisoner's Dilemma game. It is presently a two person non zero sum, non-cooperative game. The strategy recommendations provide the means necessary to change the game from its non-cooperative form to a fully cooperative type of two person game. Unless the game is changed to a cooperative form a solution is highly unlikely. One important point to remember is that the choices of possible solutions are not limited to the four options that define the Prisoner's Dilemma. There exists a set of solutions that are bounded by these four solutions. Movement from the status quo to any solution within the solution set (bargaining space, p.108) will leave both players better off than they are in the status quo. The seven ways that will change the structure of the game to the cooperative form are:

1. displaying the matrix,
2. increasing communication,
3. increasing trust
4. modifying the matrix,

5. reducing misperceptions,
6. modifying strategy,
7. modifying the rules of the game.

The structure of the game has been defined and the strategies necessary to change the problem from a non-cooperative to a cooperative form of conflict have been described. It is in the cooperative form of conflicts that solutions can be negotiated. In this environment the ideas of "principled negotiation" as described by Fisher and Ury can be utilized to work out an agreement.

Besides gaining a better understanding of the situation and an idea of some of the strategies involved in solving the game, there are other significant conclusions that can be drawn from the game theoretical model as it applies to Korean unification. First, the time for the two Koreas to act is now. The game as defined by the model is at present symmetric. The symmetry exists due to the relative balance of military power. However, as time passes the South will continue to increase the economic disparity that exists between the itself and the North. The South's military capability is also likely to continue to grow. Their arms industry that was started in the early 1970's is growing and is providing almost all the military equipment needed by the ROK. Additionally, as time passes there will be a generation of Koreans who do not ever remember having lived in a

united country. This may have a profound effect on popular support for unification. Thus, one could conclude that increased socialization of the situation will tend to make the division of the two countries more concrete. If this occurs, the best possible solution might be to formalize the status quo.

Second, the key factor in solving the dilemma is increasing cooperation. Conversely, any efforts that decrease the possibility of defection will also have positive results. What then is the best strategy to entice the players into cooperative behavior? The crucial factor is the social-psychological relationship of the participants, i.e., their initial attitudes toward each other and their experience as the game progresses [105]. As Morton Deutsch has said, players rate a cooperative partner more favorably on his motives and on his personality traits than a competitive opponent and react more strongly to his signals (Tables 1 and 2, Chapter 6). Likewise, if a player acts non-cooperatively, the opponent will be viewed in a negative light and will be blamed for the conflict course. The best strategy to achieve mutual cooperation is a tit-for-tat strategy which results in an increase of cooperative moves on both sides. Previous competitive plays strengthen the cooperative interaction in subsequent games [106]. The success of this strategy requires one of the players to make an



initial bold gesture that is subsequently accepted by the other player.

Third, interaction determines to a considerable degree the performance of the individual participant. Socially rigid players behaved more cooperatively when they interacted with socially open minded players: on the other hand, the latter acted less cooperatively in playing against the former. What is remarkable is the finding that of an overall gain in cooperative behavior, since the rigid players increased more in cooperative performance than the open-minded ones lost [107]. Based on this, one key question asked by the South can be answered. How does one get the North to exhibit more cooperative behavior and thus be willing to negotiate? The latter discussion leads one to believe that flexible cooperative attitudes will lead to a modification of the provocative nature or aggressive inclination on the side of even the most rigid adversary. Any move by one side that elicits a cooperative response from the other side will have a positive effect on the game. The most notable effect will be a lessening of tensions on the Korean peninsula. In an environment with less tension the chances of conflict are reduced. This in turn is likely to further increase the cooperative nature of the two parties involved in the conflict. In such an environment, trust is likely to increase, communication will be increased, and the chance for misperception by the players reduced.

Fourth, any move towards unification will have to be done by the Koreans themselves. This however, involves one important assumption; the two Korean governments really want unification and are willing to work toward that goal. It is possible that both governments are unwilling to seriously move in such a direction for fear of undermining their present political power. If this is true there is indeed little hope for the unification of the Korean peninsula. For the purpose of this study it has been assumed that the governments are sincere. Any move towards unification will have to be internal at least in the initial stages. The four major outside powers while professing support for unification neither want it, for their own selfish reasons, nor would be willing to initiate any action that might lead to unification. Once action towards unification has been started, either internally or externally, the four powers can positively and negatively influence the outcome. The extent of support or non-support for a unification initiative by the four powers has infinite possibilities and its effects are unknown in the absence of an actual scenario. The two Koreas must take this into account before venturing towards unification. This does not rule out the use of a third party in the process of unification once started by the two Koreas. To be useful the third party would have to be a disinterested party to the situation and would have to

be agreed upon by the conflicting parties. As was discussed earlier, this third party could prove invaluable in the initial stages of dialogue between the two Koreas as an aid in establishing communication and building trust. The influence of a mediator has been explained by Jerome Podell and William Knapp:

experimental studies have shown that the clearest proof of the importance of mediation results from a game in which the identical offer for a compromise settlement was submitted by the spokesman for the one party and by the impartial mediator; the first was rejected as unacceptable, while the mediated version was accepted. Thus mediation can open a path to a mutually satisfactory agreement that would portend more cooperative behavior in the future. [108]

None of the four major powers could be a successful mediator. The choice of the mediator would have to be agreed upon by the two Koreas and would have to be a nation or organization that would be willing to take on the task.

Fifth, the status quo in Korea, as discussed earlier in this thesis, is not a status quo at all. The existing situation is constantly changing and evolving. The South is getting increasingly stronger economically and militarily. They have surpassed, in economic terms, the ability of the North to compete in world markets. This gap is likely to widen as time passes. Thus, the status quo can only be defined by a short period of time. The status quo today is

much different than the status quo that existed in 1960 or 1970. The one common factor in all of these time periods is that two national governments and two nations have existed. At some point the two Korean governments will have to choose from among the possible options that are available. These options may not lead to the unification of the peninsula. If as Nathan White suggests, the two Koreas do not want unification based on the possible solutions outlined by the Prisoner's Dilemma game described in this thesis, then alternative solutions must be eagerly sought [109]. One possible scenario is the initial formalization of the status quo, meaning two independent Korean nations recognized by each other and the four powers, economic exchanges that allow for the development of the North Korean economy, and normalization of relations between the two Korean nations. This would have a tendency to reduce the tension on the peninsula, but as Nathan White suggests would not eliminate totally the chance of hostilities occurring. In this environment, the political interests of the elites in the North and the South are preserved while allowing for negotiations to occur that would work towards an eventual unification. This scenario may be necessary in the long term. Anyone who believes that unification is likely to occur quickly is mistaken. Any moves towards unification must, however, be done in a cooperative environment. This scenario could

provide for that cooperative environment. As was stated early in this thesis, the two Koreas do not have to move directly to a final solution to the unification problem. It can be done in stages that will allow for a reduction of the tension, a lessened chance for hostilities, and in a cooperative environment that will allow for an eventual final solution.



## ENDNOTES

1. Their ideas are contained in the book Getting to Yes: Negotiating an Agreement Without Giving In (Boston: Houghton Mifflin Co, 1981).
2. See Ernst Haas, The Uniting of Europe (Stanford: Stanford University Press, 1958); Leon Lindberg, The Political Dynamics of European Economic Integration (Stanford: Stanford University Press, 1963); Charles Dentland, International Theory and European Integration (London: Faber and Faber, 1973); Karl Deutsch, The Analysis of International Relations 2d ed. (Englewood Cliffs, N.J.: Prentice Hall, 1978) Johan K. de Vree Political Integration: The Formation of Theory and Its Problems (Paris: Mouton, 1972); and Johan Galtung, "A Structural Theory of Integration", Journal of Peace Research 3:4, (1968).
3. For a discussion of this idea see Amatai Etzioni, Political Unification. (New York: Holt Rinehart and Winston Inc., 1965), pp 5-8.
4. Ernst E. Haas, The Uniting of Europe, (Stanford: Stanford University Press, 1964), p. 29.
5. Leon Lindberg, The Political Dynamics of European Economic Integration, (Stanford: Stanford University Press, 1963), p. 6.
6. Etzioni, Political Unification, p.6.
7. Ibid., p.4.
8. Harold Hakwon Sunco America's Dilemma in Asia, (Chicago: Nelson Hall, 1979), pp 153-179.
9. Ibid., p. 163.

10. Ibid., p.163, quoting Ernst B. Haas, The Uniting of Europe, p. 16.
11. One method of gradual unification has been proposed by Tae-hwan Kwak. His ideas are contained in: "Block-Building Approach to Korean Unification," in Problems of Korean Unification, ed. Se-jin Kim (Seoul: Research Center for Peace and Unification, 1976); and "Korean Political Integration: a Block Building Model Revisited," paper presented at the Symposium on the Problems of Korean Unification, Washington D.C., 14-16 January 1982.
12. Gavan McCormack, "The Reunification of Korea" Pacific Affairs 55, (Spring 1982), 1.
13. Robert Fisher and William Ury, Getting to Yes: Negotiating an Agreement Without Giving In, p. 4.
14. The information on the proposals of both the North and the South is contained in a paper by Tae-hwan Kwak, "Problems of Korean Political Integration" given at the Eastern Kentucky University College of Social and Behavioral Sciences Faculty Retreat on "The Impact of Industrialism on the Human Situation", at Maywoods, Kentucky, April 23-24, 1982.
15. Martin Shubik, Game Theory and Related Approaches to Social Behavior, (New York: John Wiley and Sons, 1964), p. 8.
16. Anatol Rapoport, "Conflict Resolution in the Light of Game Theory" in, Paul Swingle ed The Structure of Conflict (NY: Academic Press 1970) pp. 39 & 41.
17. James E. Dougherty, Contending Theories of International Relations, (Philadelphia: J.B. Lippincott, 1971), p.346.
18. John C. Harsanyi, Rational Behavior and Bargaining Equilibrium in Games and Social Situations, Cambridge: Cambridge University Press, 1977, p.19.

19. Glenn Synder and Paul Diesing, Conflict Among Nations, (Princeton, New Jersey: Princeton University Press, 1977)
20. A complete review of the history of the DPRK's actions and policies on the unification issue is contained in a paper by B.C. Koh "Unification Policy and North-South Relations", presented at the Conference on North Korea, Berkeley, California February 23-28, 1981.
21. For a more detailed discussion of the prospects for a military solution to the unification issue see Nathan White "The Necessity for a German Solution to the Korean Problem", Korea and World Affairs, 2 (Fall 1978), pp.349-368.
22. Claude A. Buss, The United States and the Republic of Korea: Background for Policy, (Stanford: Hoover Institution Press, 1982), p.66.
23. Gavan McCormack, "The Reunification of Korea: Problems and Prospects", p.6
24. Byung Chul Koh, "Unification Policy and North-South Relations", p.7.
25. Korea Overseas Information Service Unification Endeavors of the Republic of Korea (Seoul": Korean Overseas Information Service, May 1982), p.41.
26. Ibid. p.42.
27. Koh, "Unification Policy and North-South Relations", P. 12
28. Koh "Unification "Policy and North-South Relations", p.20.
29. Byung Chul Koh, "Battle Without Victors: The Korean Question in the 30th Session of the UN General Assembly", Journal of Korean Affairs, Jan 1976, p. 59.

30. Korea Overseas Information Service Unification Endeavors of the Republic of Korea, p. 55.
31. Anatol Rapoport Game Theory as a Theory of Conflict Resolution (Boston: D. Reidel Publishing Co., 1974) p.1.
32. Dougherty Contending Theories of International Relations, p. 349.
33. Harsanyi, Rational Behavior and Bargaining Equilibrium in Games and Social Situations (Cambridge: Cambridge University Press, 1977, p. 278)
34. James G. March and Herbert A. Simon, "The Concept of Rationality", in J. David Singer et al., Human Behavior and International Politics (Chicago: Rand McNally and Company, 1965) pp 340, 341.
35. Ibid. , p.342.
36. Ibid. , p.343.
37. Martin Shubik, Game Theory and Related Approaches to Social Behavior, (New York: John Wiley and Sons, 1984), p. 5.
38. Harsanyi, Rational Behavior and Bargaining Equilibrium in Games and Social Situations, pp 8,9.
39. Shubik, Game Theory and Related Approaches to Social Behavior, p. 12.
40. Other applications of game theory to international relations can be seen in: Anatol Rapoport, "Conflict Resolution in the Light of Game Theory and Beyond", and Irving Louis Horowitz, "Deterrence Games: From Academic Casebook to Military Codebook", in Paul Swingle ed. The Structure of Conflict (NY: Academic Press, 1977); Jurgen Dedring, Recent Advances in Peace and Conflict Research (Beverly Hills: Sage Publications, 1977);

Glenn Snyder and Paul Diesing, Conflict Among Nations (Princeton, Princeton University Press, 1977); and Frank Zagare, "A Game Theoretical Analysis of the Vietnam Negotiations", in Journal of Conflict Resolution 21 (December 1977).

41. A distinction must be made between the use of the term Zero sum game in its common usage in discussing international relations and its more formal theoretical meaning. International relations situations generally referred to as zero sum mean that what one side loses the other side gains. The gains and losses are not necessarily exactly equal. In its theoretical meaning in game theory the definition of a zero sum game entails gains and losses that (1) can be measured, and (2) are exactly equal. The term zero sum game is as described in this section refers to the formal use of the term as outlined in the literature on game theory.
42. Kenneth Boulding, Conflict and Defense (NY: Harper and Row Publishers, 1962) p.48.
43. Kenneth Waltz, Man the State and War: a Theoretical Analysis (New York: Columbia University Press, 1959), pp.202,203. Waltz's citation of John von Neumann and Oskar Morgenstern is from their book Theory of Games and Economic Behavior (Princeton: Princeton University Press, 1944), p. 540.
44. Ibid., p. 203.
45. This idea is described in Karl W. Deutsch The Analysis of International Relations (Englewood Cliffs, NJ: Prentice Hall Inc, 1968), p.117.
46. The discussion of these is contained in Anatol Rapoport and M. Guyer, "A Taxonomy of 2 X 2 Games", General Systems, 11 (1966), pp. 203-214.
47. Dougherty, Contending Theories of International Relations, p.354.



48. Glenn H. Snyder and Paul Diesing, Conflict Among Nations (Princeton: Princeton University Press, 1977), p. 79.
49. Anatol Rapoport, Game Theory as a Theory of Conflict Resolution, p. 17.
50. Ibid., pp. 82, 83.
51. Ibid., p. 85.
52. Martin Shubik, Game Theory and Related Approaches to Social Behavior, p. 287.
53. Ibid., p. 287.
54. Anatol Rapoport, Strategy and Conscience, p. 48.
55. Philip Bonavich, "Cooperation and Group Size in N-Person Prisoner's Dilemma" Journal of Conflict Resolution, XX:4, p. 704.
56. This has been shown to be true in experimental studies. See Bonavich, "Cooperation and Group Size" and Morton Deutsch, The Resolution of Conflict, (New Haven: Yale University Press, 1973), pp 232-290.
57. See Edward Olsen, "The American and Japanese Stake in Korean Unification", The Journal of East Asian Affairs, Vol III, Number 1 (Spring/Summer 1983).
58. Edward A. Olsen, "The American and Japanese Stake in Korean Unification", The Journal of East Asian Affairs, Vol III, Number 1, (Spring/Summer 1983), p. 9.
59. Merit E. Janow, and Thomas Pepper, "Summary of Hudson Institute Workshop on Future Prospects for the Korean Peninsula in a World Context", (Croton on Hudson, New York: Hudson Institute, November 1982), p. 33.

60. Edward A. Olsen, "Does Anyone Really Want Korean Unification" The Asian Wall Street Journal, May 16, 1983, p.14.
61. Wayne Patterson, "Alternative Strategies for Managing Inter-Korean Conflicts and Major Powers", a paper presented at the 24th Annual Convention of the International Studies Association, Mexico City, Mexico, April 5-9, 1983, p.1.
62. Ibid., p.4.
63. Ibid., pp. 5,6.
64. Malvern Lumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", Journal of Conflict Resolution, 17:1, March 1973, p15-23.
65. Anatol Rapoport and A.M. Chamnan, Prisoner's Dilemma: A Study in Conflict and Cooperation (Ann Arbor Michigan: University of Michigan Press, 1965)
66. Lumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", p. 15.
67. Karl Deutsch, The Analysis of International Relations (Englewood Cliffs N.J.: Prentice Hall Inc., 1968, p. 122.)
68. Morton Deutsch, The Resolution of Conflict (New Haven: Yale University Press, 1973), p. 198.
69. Morton Deutsch, "Trust and Suspicion," Journal of Conflict Resolution Vol II, Number 3, March 1958, p.266.
70. Morton Deutsch, The Resolution of Conflict, (New Haven: Yale University Press, 1973), p.214.

71. Iumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", p. 19.
72. Dedring, Recent Advances in Peace and Conflict Research, p. 183.
73. Ibid. p. 184.
74. Deutsch, The Resolution of Conflict, p. 202.
75. Snyder and Diesing explain the situation this way: "Prisoner's Dilemma and Chicken are adversary games in that the interest of the parties are more completely opposed. If one player plays D or commits himself to it, the other can do no better than minimax which usually in actual cases has negative utility. In Prisoner's Dilemma, he gets this by playing D to avoid the disastrous 1 payoff (the other players first choice). In Chicken, he gets it by accomodating to the other's coercive pressure. The cnief difference between the two games is that in Chicken the worst outcome is mutual coercion, and yielding to the other's ccercive pressure is only the second worst, whereas in Prisoner's Dilemma the reverse is true". Conflict Among Nations p, 44. An in depth discussion of the differences between Prisoner's Dilemma and Chicker and their relationship to international relations is found in: Glenn H. Snyder, "Prisoner's Dilemma and Chicker Models in International Relations", International Studies Quarterly, 15:1, (March 1971).
76. Iumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", p. 17, He sees this as a possibility in the Cyprus situation.
77. Richard L. Walker, "Korean American Relations in the 1980's: the Cultural Dimension", Korea Observer, XII:4, Winter 1981, p.388,389.
78. Wayne Patterson, "Alternative Strategies for Managing Inter-Korean Ccnflicts and Major Powers", a paper presented at the 24th Annual Convention of the International Studies Association in Mexico City, Mexico, April 5-9, 1983, p.5.

79. (1) decision makers tend to fit the incoming information into their existing theories and images; (2) a theory will have greater impact on an actor's interpretation of data (a) the greater the ambiguity of the data and (b) the higher the degree of confidence with which the actor holds the theory; (3) scholars and decision-makers are apt to err by being too wedded to the establishment view and too closed to new information, as opposed to being too willing to alter their theories; (4) actors can more easily assimilate into their established image of another actor information contradicting that image if the information is transmitted and considered bit by bit than if it comes all at once; (5) misperception is most difficult to correct in the case of a missing concept and least difficult to correct in the case of a recognized but presumably unfilled concept; (6) when messages are sent from a different background of concerns and information than is possessed by the receiver, misunderstanding is likely; (7) when people spend a great deal of time drawing up a plan of making a decision, they tend to think that the message about it they wish to convey will be clear to the receiver; (8) actors often do not realize that actions intended to project a given image may not have the desired effect because the actions themselves do not turn out as planned; (9) there is an overall tendency for decision-makers to see other states as more hostile than they are; (10) actors tend to see the behavior of others as more centralized, disciplined, and coordinated than it is; (11) because a state gets most of its information about the other state's policies from the other's foreign office, it tends to take the foreign office's position for the stand of the other government as a whole; (12) actors tend to overestimate the degree to which others are acting in response to what they themselves do when others behave in accordance with the actor's desires; but when the behavior of the other is undesired, it is usually seen as derived from internal forces; (13) when actors have intentions that they do not try to conceal from others, they tend to assume that others accurately perceive these intentions; (14) if it is hard for an actor to believe that the other can see him as a menace, it is often even harder for him to see that issues important to him are not important for others; (15) actors tend to overlook the fact that evidence consistent with their theories may also be consistent with other views. Robert Jervis, "Hypotheses on Misperception" in James N. Rosenau International Politics and Foreign Policy, (New York: Free Press, 1969), pp 237-254.



80. Iumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", p. 20.
81. Iumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", p. 22.
82. Iumsden, "The Cyprus Conflict as a Prisoner's Dilemma Game", p. 23.
83. Deutsch, The Resclution of Conflict, p.20.
84. Morton Deutsch, "Socially Relevant Science", in American Psycholcgist, 24:12, (December 1969), p. 1078.
85. Ibid., p.1077.
86. Deutsch, The Resclution of Conflict, p. 22.
87. J.P. Sheposi and P.S. Gallo, "Asymmetry of Payoff Structure and Ccooperative Behavior in the Priscrer's Dilemma Game", in Journal of Conflict Resolution, 17:6, June 1973, p.331.
88. Anatcl Rapoport, "The Use and Misuse of Game Theory", in Scientific American, CCVII, December 1962, p. 118.
89. Philip Worchel, "Temptation and Threat in Non-Zerc Sum Games", in Journal of Conflict Resolution, XIII:1, pp. 103-108.
90. Jean M. Hiltrop and Jeffrey Z. Rubin, "Position Loss and Image Loss in Bargaining", in Journal of Conflict Resclution, September 1981, p.530, 533.
91. Fred C. Ikle, How Nations Negotiate, (New York: Frederick A. Praeger Publishers, 1964), p. 2.
92. Ibid., pp. 3,4.



93. Fisher and Ury, Getting to Yes, p. xii.
94. Ibid., p. 4.
95. Ibid., pp. 4-8.
96. Ibid., p. 11.
97. Ibid., pp 22-29.
98. Ibid., pp. 30-33.
99. Ibid., pp. 33, 34.
100. Ibid., pp 35-37.
101. Ibid., p. 41.
102. Ikle, How Nations Negotiate, p. 3.
103. Fisher and Ury, Getting to Yes, p. 62.
104. Ibid., p. 85.
105. Donnel Wallace and Paul Rothaus, "Communication, Group Loyalty, and Trust in the PD game," Journal of Conflict Resolution, 15 (June 1971): pp 370-380.
106. These findings are reported in Warner Wilson, "Cooperation and the Cooperativeness of the Other Player," Journal of Conflict Resolution, 13 (March 1969): P. 117; and his "Reciprocation and Other Techniques for Inducing Cooperation in the Prisoner's Dilemma Game", Journal of Conflict Resolution, 15 (June 1971): p. 195.

107. Lars Dencik and Hakan Wiberg, "Strategic Thinking as a Function of Social Attitudes: an Experiment with Prisoner's Dilemma":, Conflict Control and Conflict Resolution Hoglund and Ulrich ed., (Copenhagen: Munksgaard, 1972), p. 56., as cited in Dedring, Recent Advances in Peace and Conflict Resolution, pp. 180, 181.
108. Jerome E. Podell and William M. Knapp, "The Effect of Mediation on the Perceived Firmness of the Opponent", Journal of Conflict Resolution, 13 (December 1969): p. 520.
109. Nathan White, "The Necessity for a German Solution to The Korean Problem", Korea and World Affairs, 2 (Fall 1978): pp. 349-368.

## APPENDIX A

### CHRONOLOGY OF KOREAN UNIFICATION 1945-1982

August 15, 1945--

Korea was liberated from Japanese rule and divided into two military zones--the Soviet forces controlling the area north of the 38th parallel and the U.S. forces the area south.

March 20, 1946--

The U.S.-Soviet joint Committee held its first session to discuss ways to unify Korea but was indefinitely adjourned on May 6, 1946.

May 21, 1947--

The second session of the U.S.-Soviet Joint Committee opened. It was adjourned on October 18, 1947.

November 14, 1947--

The United Nations General Assembly passed a resolution calling for general elections throughout Korea to establish a single government.

January 7, 1948--

The United Nations Temporary Commission on Korea arrived in Seoul to supervise general elections. The Soviet occupation authorities north of the demarcation line refused the entry of the commission on January 23, 1948.

March 25, 1948--

The North Korean Democratic National United Front proposed a joint conference of "political parties and social organizations" in both halves to discuss unification plans opposing general elections in the southern areas.

April 20, 1948--

The aforementioned joint conference opened in P'yongyang with the participation of 564 representatives of 56 southern and northern organizations. On April 30, 1948, it issued a communique calling for the withdrawal of all foreign troops and the creation of an "all-Korea Political Council", a caretaker government, to conduct general elections throughout the country to establish a unified government.

May 10, 1948--

General elections were held under United Nations supervision in the southern areas to elect a National Assembly, which was then formed on May 31, 1948.

June 12, 1948--

The National Assembly passed a resolution calling for general elections in the northern areas to elect delegates to the Assembly in order to establish a unified legislature.

August 15, 1948--

The Republic of Korea government was inaugurated in Seoul.

September 9, 1948--

P'yongyang declared the founding of the Democratic People's Republic of Korea.

June 28, 1949--

The Democratic Front for the Unification of the Fatherland was founded in P'yongyang and called for the formation of an election committee of representatives of South and North Korean political parties and social organizations to conduct general elections throughout the peninsula for the establishment of a unified national legislature.

June 7, 1950--

The Central Committee of the Democratic Front for the Unification of the Fatherland proposed conducting general elections throughout Korea between August 5 and 8 to establish a unified national legislature in Seoul on August 15, 1950. It also proposed a consultative conference of representatives of all political parties and social organizations in the South and in the North to make arrangements for the elections.

June 19, 1950--

The North Korean Supreme People's Assembly proposed a merger of the North Korean legislature with the National Assembly in the South.

June 25, 1950--

The Korean War hostilities were initiated.

July 27, 1953--

The Korean Armistice Agreement was signed, bringing the fighting to a ceasefire.

November 23, 1953--

President Syngman Rhee of the Republic of Korea proposed that a general election be held in the North to choose representatives to fill the seats reserved for them in the ROK National Assembly.

April 27, 1954--

The Geneva Conference opened fulfilling the provision of the Armistice Agreement that a conference be convened to seek a peaceful settlement of the Korean issue.

June 15, 1954--

The Geneva Conference broke up due to sharp disagreements over three major issues: the authority and competence of the United Nations on the Korean question; U.N. supervised general elections proportionate to the population of the whole of Korea; and the stationing of U.N. forces in Korea until the creation of a unified, independent and democratic Korea.

October 2, 1954--

The ROK National Assembly passed a resolution calling for unification through U.N.-supervised general elections in the northern areas to choose representatives to the legislature.

October 30, 1954--

The Supreme People's Assembly of North Korea called for a joint meeting of the South and North Korean legislatures, or a joint conference of representatives of all walks of life from both the South and the North, to discuss South-North exchanges and unification.



December 11, 1954--

The U.N. General Assembly, to which the basic responsibility for the Korean question returned after the rupture of the Geneva Conference, reaffirmed the goal of a unified, independent and democratic Korea established through peaceful means and urged North Korea to accept this principle. This was the beginning of a long series of debates on the Korean question.

August 15, 1955--

In a Liberation Day speech, Kim Il-sung proposed an international conference to guarantee peace in Korea, a North-South agreement not to use military force, the withdrawal of foreign troops and a conference of delegates from Seoul and P'yongyang to discuss peaceful unification.

April 28, 1955--

The Third Party Congress of the North Korean Workers Party called for joint struggles against "American imperialism and other enemies of unification", the application of "democratic principles" in the South, general elections to establish a unified government and an international agreement to secure the peace of Korea and a peaceful solution of the Korean question.

September 10, 1957--

The ROK National Assembly called for U.N.-supervised general elections in the North to unify the country and Korean membership in the United Nations.

September 20, 1957--

At the Supreme People's Assembly, Kim Il-sung proposed the withdrawal of all foreign troops from Korean soil, the reduction of armed forces in both the South and the North to 100,000 each, free travel and postal and cultural exchanges between the South and the North, an international conference for peaceful adjustment of the Korean question and general elections throughout the country to achieve unification.

August 14, 1960--

In a Liberation Day address, Kim Il-sung proposed a confederation of the South and the North as an interim step toward all Korea general elections, the creation of a North-South Economic Committee in case the confederation proposal was not accepted, cultural, athletic, other forms of exchanges, the withdrawal of foreign troops and North-South force reductions, and a P'armunjom conference between Seoul and P'yongyang representatives to discuss these proposals.

August 27, 1960--

Prime Minister Chang Myon of the ROK called for U.N. supervised general elections to unify the country.

November 2, 1960--

The ROK National Assembly asked that U.N. supervised elections proportionate to population be held throughout the peninsula under procedures prescribed by the ROK Constitution.

June 24, 1961--

ROK Foreign Minister Kim Hong-il declared that Korean unification must be sought through peaceful means alone.

November 15, 1961--

Park Chung Hee issued a joint communique in Washington with President Kennedy calling for peaceful unification on the principles reaffirmed by the U.N. General Assembly.

October 23, 1962--

At the Supreme People's Assembly in P'yongyang, Kim Il-sung repeated a proposal for North-South confederations, joint anti-American struggles and mutual reductions in military forces.

January 24, 1963--

Sports delegates from the South and North met in Lausanne, Switzerland, to discuss the formation of a unified Korean team to take part in the 1964 Tokyo Olympics. The third meeting, held in Hong Kong on July 24, 1963 ended in failure.

December 10, 1963--

In P'yongyang, a joint meeting of representatives of the Supreme People's Assembly, the Democratic Front for the Unification of the Fatherland and the Committee for the Peaceful Unification proposed a North-South non aggression pact; postal and telecommunications exchanges; the authorization of travel between the South and the North by journalists, artists, scholars, and tourists; a standing joint committee at P'anmunjom to deal with economic and other forms of exchanges; and a conference between representatives from Seoul and P'yongyang to discuss various concerns of the entire people. It repeated the demand for the withdrawal of foreign troops and mutual force reductions.

November 3, 1964--

President Park Chung Hee opposed any unification formula other than U.N. supervised free general elections held in the South and the North.

September 8, 1966--

North Korean Vice-Premier Kim Kwang-sop demanded the nullification of the U.N. resolutions on the Korean question and a joint conference of South and North Korean political parties to discuss ways to unify the country free of outside intervention.

October 17, 1966--

The ROK Foreign Ministry issued a unification white-paper upholding the principle of U.N supervised all-Korea general elections proportionate to indigenous population.

March 1, 1968--

The ROK National Unification Board was established to develop and coordinate unification efforts.

August 15, 1970--

President Park in a Liberation Day address called for peaceful competition in development, construction, and creativity between the South and North.

August 12, 1971--

Dr Choi Doo-sun, President of the Republic of Korea Red Cross, proposed to the North Korean Red Cross that the Red Cross societies in the two sides of Korea jointly initiate a campaign to search for the families dispersed throughout the South and North.

August 14, 1971--

The North Korean Red Cross announced its acceptance in principle of the Republic of Korea National Red Cross proposal for the family search campaign.

September 20, 1971--

First preliminary meeting of the South-North Red Cross conference opened at P'anmunjom.

May 2, 1972--

President Park sent Lee Hu-rak, then director of the Central Intelligence Agency, to P'yongyang, as his secret emissary to meet with Kim Il-sung in an attempt to create dialogue between the two sides.

May 29, 1972--

P'yongyang secretly sent Park Sung-chul to Seoul in return for Lee Hu-rak's visit.

July 4, 1972--

Seoul and P'yongyang announced the South-North Communiqué, in which the two sides vowed to suspend slandering and defaming each other and promote exchanges. They also agreed to create a South-North Coordinating Committee and open a direct Seoul-P'yongyang telephone line.

August 11, 1972--

The preliminary meeting of the South-North Red Cross conference came to an end.

August 22, 1972--

Seoul and P'yongyang issued statements guaranteeing the personal safety of those who travel across the truce line to take part in full-dress Red Cross meetings to be held in Seoul and P'yongyang alternately.

August 29, 1972--

The first full-dress meeting of the North-South Red Cross Conference opened in P'yongyang.

September 12, 1972--

The second meeting of the Red Cross Conference opened in Seoul.

October 12, 1972--

The first meeting of the co-chairmen of the South-North Coordinating Committee opened at P'anmunjom.

November 2, 1972--

The second co-chairmen's meeting of the South-North Coordinating Committee opened in P'yongyang and adopted the Agreed Minute on the Formation and Operation of the South-North Coordinating Committee, and an agreement on the suspension of propaganda broadcasts against each other.

November 30, 1972--

The South-North Coordinating Committee (SNCC) was formally inaugurated and held its first meeting in Seoul.

March 10, 1973--

The first Executive Council meeting of the SNCC opened at P'anmunjom.



June 10, 1973--

P'yongyang reopened, for a while, propaganda broadcasts across the truce line, violating the propaganda suspension agreement.

June 23, 1973--

President Park declared the Special Foreign Policy for Peace and Unification, in which he called for peaceful coexistence between the North and the South pending national unification, and disclosed his intentions not to oppose P'yongyang's entry into the United Nations if it would not favorably affect conditions for peaceful unification.

June 26, 1973--

P'yongyang rejected any simultaneous entry into the United Nations by North and South Korea.

July 10, 1973--

The seventh meeting of the South-North Red Cross Conference opened in P'yongyang; the North Korean Red Cross rejected the ROK Red Cross proposal that the two sides exchange groups of visitors to ancestral graves in the South and North. No date was set for the next meeting.

August 28, 1973--

Kim Young-joo, P'yongyang-side co-chairman of the SNCC, announced P'yongyang's boycott of the North-South dialogue.

August 29, 1973--

Lee Hu-rak, Seoul co-chairman of the SNCC denounced P'yongyang's unilateral suspension of the dialogue, and demanded its immediate resumption.

November 16, 1973--

In a message delivered to the South-side of the SNCC, P'yongyang demanded as preconditions to a resumed dialogue, repeal of the Special Foreign Policy for Peace and unification and release of all Communist prisoners.

December 13, 1973--

Lee Bcm-sok, chief delegate of the ROK Red Cross, called for an early resumption of the South-North Red Cross meetings, in a message to his P'yongyang counterpart.



January 18, 1974--

President Park proposed, in a New Year press conference, the conclusion of a South-North non-aggression agreement.

January 26, 1974--

In a editorial of the Rodong Shinmun, P'yongyang rejected President Park's offer of a non-aggression agreement.

May 29, 1974--

The delegates meeting of the South-North Red Cross Conference wound up seven rounds of contacts, and agreed to hold working level meetings of the Red Cross talks.

July 10, 1974--

The first working level meeting of the South-North Red Cross Conference was held.

August 15, 1974--

President Park announced three basic principles for peaceful unification: the conclusion of a non-aggression agreement, continuation of dialogue and institution of North-South exchanges and cooperation, and the holding of a free all Korea election to achieve unification.

January 24, 1975--

The Seoul side of the SNCC protested P'yongyang's resumption of propaganda broadcasts.

May 29, 1975--

The P'yongyang side notified Seoul of its decision to put off indefinitely the 11th vice-co-chairmen's meeting of the SNCC originally set for May 30, 1975.

July 4, 1975--

President Park, in a statement marking the third anniversary of the South-North Communique, urged P'yongyang to stop war preparations and resume suspended dialogue.

March 31, 1976--

The ROK Red Cross proposed a meeting between the chief delegates of the two sides to discuss the deadlocked Red Cross talks.

April 7, 1976--

North Korea Red Cross rejected the offer of a chief delegates meeting.

August 30, 1976--

North Korea severed the Seoul-P'yongyang telephone line.

January 12, 1977--

President Park told a news conference that he would not oppose the withdrawal of U.S. ground troops provided a non aggression pact be concluded between North and South Korea. He also offered food aid to the North in view of crop failures there.

January 28, 1977

Chang Key-young, acting Seoul-side co-chairman of the SNCC, proposed a discussion of arrangements for concluding a nonaggression agreement.

February 1, 1977--

P'yongyang rejected the proposal for debate on the idea of a non-aggression agreement.

February 11, 1977--

At the 21st Red Cross working level meeting the South suggested that if P'yongyang could not agree to the holding of the eighth full-dress meeting in Seoul, it be held in P'yongyang. The North rejected the offer.

July 22, 1977--

Dr. Min Kwan-shik, Seoul's acting co-chairman of the SNCC, denounced P'yongyang's establishment of a 200 mile economic sea zone.

August 1, 1977--

Culture and Information Minister Kim Seong-jin of the ROK, denounced P'yongyang's establishment of an "economic sea zone" and "military sea boundary lines".

March 19, 1978--

P'yongyang unilaterally postponed the 26th working level Red Cross talks that were to take place March 20.

June 23, 1978--

President Park proposed the creation of a consultative body for the promotion of South-North economic cooperation.

August 12, 1978--

President of the ROK Red Cross, Lee Ho, proposed to his North Korean counterpart to hold Red Cross talks at any time.

January 19, 1979--

President Park, in a New Year press conference, called on North Korea to resume the stalemated South-North talks between responsible authorities "at any place, at anytime, and at any level" without preconditions to discuss all problems pending between the two sides in order to prevent a war and achieve unification.

February 17, 1979--

In the first North-South contact in over a year, Dr. Min Kwan-shik, FCK acting co-chairman of the SNCC, met in P'annunjom with North Korean representatives of the Democratic Front for the unification of the Fatherland in an attempt to open the way for the resumption of the long stalled dialogue between the two halves of the peninsula.

February 24, 1979--

Sports officials from the South and the North met at P'annunjom to discuss the organization of a single Korean team to compete in the 35th World Table tennis Championships to open in P'yongyang on April 25, 1979. The talks ruptured at the fourth meeting on March 12, 1979. Subsequently, North Korea refused the entry of the South Korean team for participation in the tournament.

March 7, 1979--

Dr. Min Kwan-shik met with the North Koreans for the second time in P'annunjom. Dr. Min stated that the Democratic Front for the Unification of the Fatherland was not an acceptable negotiating partner and called for the normalization of the SNCC.

March 14, 1979--

Dr. Min met with the North Koreans for the third time in P'annunjom. He proposed that a meeting of working-level officials representing the authorities of both sides be held in P'annunjom on March 28.

March 28, 1979--

Representing the government of the ROK, a delegation of officials led by Dong Hoon, Vice-Minister of national Unification, went to P'annunjom for a working level meeting but no North Korean delegation showed up.

July 1, 1979--

President Park and President Carter proposed the convening of a "meeting of official representatives of South and North Korea and the United States" to seek means to promote dialogue and reduce tension in this part of the world.

July 10, 1979--

President Park called on North Korea to reopen the South-North Red Cross talks and to accept the offer of the ROK to either hold talks between responsible authorities of the two sides or to hold tripartite talks including the United States.

December 21, 1979--

President Choi Kyu Ha, in his inaugural address, called on North Korea to respond to any of the previous ROK proposals to resume dialogue.

January 11, 1980--

The Korean Amateur Sports Association called on its North Korean counterpart to discuss South-north athletic exchanges and joint participation in international sports events.

January 12, 1980--

Premier Li Jong-ok of North Korea sent a letter to Prime Minister Shin Hyon-hwack saying he would like to meet him in Seoul, P'yongyang or a third country. North Korean Vice-President Kim Il sent 11 other letters to ROK leaders calling for a South-North conference on the unification issue.

January 24, 1980--

Prime Minister Shin proposed to Premier Li of North Korea the holding of preparatory meetings of working-level representatives from each side to arrange a prime ministers conference.

February 6, 1980--

The first meeting of the working-level delegates to prepare for the meeting of the prime ministers was held at P'anmunjom.

February 7, 1980--

Two direct telephone lines were opened between Seoul and P'yongyang for the use of the working-level delegations from the North and South in arranging the prime ministers meeting.



August 20, 1980--

The 10th meeting of the working-level representatives was held but the chief north Korean delegate was absent for reasons of health.

September 4, 1980--

North Korea resumed propaganda broadcasts across the DMZ in violation of the July 4, 1972 Joint Communiqué.

September 12, 1980--

President Lee Hc of the FOK Red Cross urged the North Korean Red Cross to resume the plenary session of the North-South Red Cross.

September 24, 1980--

Two days before the scheduled 11th meeting of the working-level representatives to prepare for the Prime Minister's talks, North Korea unilaterally declared the suspension of working level contacts.

October 3, 1980--

President CHun Doo Hwan urged North Korea to hold a Prime Ministers conference.

October 10, 1980--

At the Sixth Congress of the North Korean Worker's Party, Kim Il-sung presented an elaborate proposal to form a Democratic Confederal Republic of Koryo but refused to discuss the idea with the South Korean authorities.

January 12, 1981--

In an attempt at a breakthrough in the deadlocked dialogue, President Chun proposed in the New Year policy Statement and exchange of visits by the top leaders of the South and the north "without any condition attached and free of any obligation".

January 19, 1981--

Kim Il, chairman of the North Korean Committee for the Peaceful Unification of the Fatherland, issued a statement rejecting the January 12 proposal.

June 5, 1981--

In an address at the inauguration of the Advisory Council on Peaceful Unification Policy, President Chun proposed a summit meeting with Kim Il-sung, leaving the choice of time and place up to the North.



June 10, 1981--

North Korea's Rodong Shinmun (Worker's Daily) and radio broadcasts rejected the June 5 proposal.

June 19, 1981--

Cho Sang-ho, president of the Korean Amateur Sports Association, proposed the formation of unified South-North teams to participate in international athletic events.

July 1, 1981--

Kim Il-sung rejected the January 12 and June 5 proposals made by the ROK.

August 6, 1981--

A joint statement by North Korea's political parties and social organizations proposed that the unification question be discussed with their South Korean counterparts at a Conference for the Acceleration of Unification. The present ROK government and political leaders were to be excluded from the conference.

August 12, 1981--

Kim Yong-shik, president of the ROK National Red Cross, declared his willingness to meet his North Korean counterpart in an effort to resume the long suspended South-North Red Cross talks on the reunion of families separated by the division of the country.

August 15, 1981--

President Chun, in a Liberation Day speech, called on P'yongyang to act affirmatively on his proposals for an exchange of visits and a summit between the top leaders of the South and the North.

August 20, 1981--

Cheon Kwan-wu, chairman of the Central Committee for National Unification of Korea, urged P'yongyang to "desist from obstructionist maneuvering and respond affirmatively to the spirit of President Chun's two proposals for a dialogue". He also offered to arrange a new dialogue.

September 4, 1981--

The ROK Ministry of National Defense issued a statement urging North Korea to end the loudspeaker broadcasts against the ROK.

November 16, 1981--

RCK Minister of Culture and Information Lee Kwang-pyo proposed archeological exchanges with North Korea as an initial step toward broader cultural contacts between the two halves of the country.

January 22, 1982--

In the New Year Policy Statement, President Chun put forward a formula for national reconciliation leading to democratic unification and invited P'yongyang to join in a Consultative Conference for National Reunification to draft a joint Constitution for a unified Korea.

February 1, 1982--

RCK Minister of National Unification Sohn Jae-shik proposed 20 pilot projects for South-North exchange and cooperation to achieve national reconciliation preliminary to substantive progress toward unification.

February 10, 1982--

Kim Il, chairman of the North Korean Committee for the Peaceful Unification of the Fatherland, issued a statement rejecting the 20 pilot projects and calling for a unification conference of 100 representatives of South and North Korean political parties and social organizations, 50 from each side, but excluding most present RCK political leaders.

February 25, 1982--

Unification Minister Sohn proposed high-level inter-Korean talks to discuss not only President Chun's unification formula but also the question of a unification conference raised by North Korea.

March 26, 1982--

Minister Sohn urged P'yongyang to accept his proposals for inter-Korean talks.

April 26, 1982--

U.S. Vice President Bush visited South Korea. He expressed strong support for the latest South Korean unification formula.

May 5, 1982--

The Minister of National Unification, Son Chae-sik proposed that North-South economic exchanges be actively promoted.

June 5, 1982--

A South Korean Presidential Council of 8,825 members urged that President Chun's 16 month old unification proposal be adopted. They also called for the North to accept the "20 pilot projects".

June 9, 1982--

ROK Unification Minister Son in a speech at Youngnam University said that prospects for unification would improve with the death of Kim Il sung. He also stated that the ROK's economic development would be a driving force for unification.

August 12, 1982--

The Korean National Red Cross in a statement urged the resumption of North-South talks on unification. They advocated reopening the Seoul-Pyongyang telephone line and the function of the liason offices at Panmunjom be restored.

August 25, 1982--

The Korea Unification bank was opened in Seoul by the government and businessmen who came from the North. It is expected to play a leading role in economic exchanges with the North when Korea is unified.

October 4, 1982--

The 2nd International Workshop on Korean Unification opened in Seoul.

October 20, 1982--

The Foreign Ministry announced that it would try to create an international climate that would be conducive to the admittance of the ROK into the United Nations. It also announced that it would pursue attempts to gain diplomatic cross-recognition of the North and the South by the United States, Japan, the USSR, and China.

October 27, 1982--

ROK Prime Minister Kim Sang-hyop, in an address to the ROK Red Cross, urged the North to come to the conference table with the South.

December 1, 1982--

The International Liason Committee for the Independent and Peaceful Unification of Korea made public a statement in Pyongyang that blamed the U.S. and the United Nations for the reunification stalemate.

December 7, 1982--

RCK President Chun Doo-hwan in a speech before the Advisory Council on Peaceful Unification Policy charged North Korea with ignoring the proposals made by the South.

January 8, 1983--

The Voice of the Revolutionary Party for Reunification stated that the presence of U.S. troops in the South is the major block to reunification. They also charged the RCK with war preparations.

January 19, 1983--

RCK President Chun Doo-hwan stated that the Korean question should be settled through direct negotiation between the North and the South without external influence and in accordance with the principles of self determination. He also called once again for a summit meeting between the North and the South, an arms reduction on the peninsula, and exchanges between the two Koreas.

February 1, 1983--

RCK Unification Minister Son Chae-sik called for renewed talks between the North and the South. He also proposed that the South and the North hold at an early date a conference of representatives of the top leaders of the North and the South Korean governments and political leaders. He further proposed that a working-level preparatory meeting be held in Panmunjom in March.

February 18, 1983--

The NODONG SINMUN denounced the efforts of the South to gain sole entry into the United Nations and its efforts to obtain cross recognition of the Koreans by the major powers.

April 26, 1983--

Minister of Foreign Affairs Yi Pom-sik announced that the prospects for cross recognition of the North and the South by the major powers are not bright.

June 24, 1983--

The NODONG SINMUN reiterated the North's policy for unification and once again outlined the "five-point policy" for unification as proposed by Kim Il-sung.



July 4, 1983--

Min Kwan-sik, the acting head of the South North Coordinating Committee, on the 11th anniversary of the July 4 Communique called for renewed talks between the North and the South.

July 8, 1983--

Minister of Foreign Affairs Yi Pom-sik announced that the ROK will seek U.N. aid in order to resume North-South dialogue on the issue of separated families.

July 29, 1983--

Dr Kim Kyong-won, ROK ambassador of the U.N. observation mission, called on the North to resume talks on the unification issue.

August 15, 1983--

NODCNG SINMUM reports that the North is willing to come to Red Cross talks with the South on the issue of separated families only upon the withdrawal of U.S. forces from the South.

August 20, 1983--

NODCNG SINMUM article blames the South for the failure of the Red Cross talks in the early 1970's and the subsequent lack of talks since that time.

October 8, 1983--

North Korea proposes three-way talks with the U.S. and the South on the unification issue.

January 10, 1984--

An editorial in the Korea Times questions the latest North Korean peace proposal. The editorial states that the South is leery of the proposal and questions the sincerity of the North since the October 8, 1983 proposal was given one day before the Rangoon bombing incident.

January 10, 1984--

North Korea restated its proposal for three-way talks on the Korean issue and requested a response from the South.



January 11, 1984--

Unification Minister Son Chae-sik replies to the North Korean call for three-way talks. His reply questions the sincerity of the North, reiterated the South's proposal for a summit meeting, and gave support to the U.S. rejection of the North Korean proposal due to the Rangoon bombing.

January 11, 1984--

The United States proposed that four-way talks be held on the issue of Korean unification. The participants would be the ROK, North Korea, the U.S., and the PRC.

Sources: Unification Endeavors by the Republic of Korea, (Seoul: Korea Overseas Information Service, 1982), and Foreign Broadcast Information Service, Daily Report: Asia and the Pacific, (New Canaan CT: Newsbank Inc.).

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